MARCH 25, 1923

THE RUBBER AGE

VOL. XII. NO. 12

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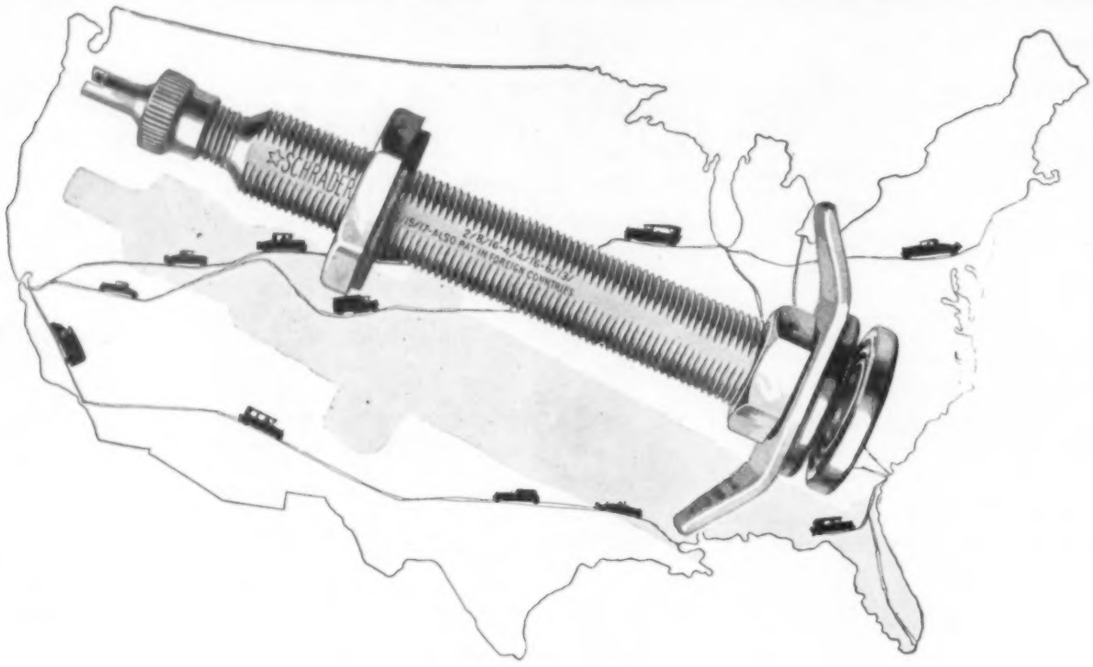

The mission of the tire valve

THROUGH city streets, along country highways, to and fro across the continent, sweeps the motor car on pneumatic tires—a symbol of modern civilization. And over the whole scene hovers the shadow of a tire valve.

Along with the rise of the motor car came the development of the pneumatic tire. And from the beginning, the tire had to depend upon its tire valve. Upon the valve's ability to retain air rested the life of the tire and the most efficient performance of the motor car.

The responsibility resting upon the tire valve, therefore, is as great as that upon any vital part of the engine. It is a responsibility that only a valve designed by the experienced engineer and made by skilled craftsmen can bear successfully.

Schrader Universal Tire Valves, conceived and perfected in this manner, have been proving their ability to retain air for many years. Although at the beginning they were far from being the highly perfected product they are today, yet then, as now, they answered the prevailing requirements for air-tight valves.

Because Schrader Tire Valves conform to the most up-to-date principles of tire valve construction, tire manufacturers are sure that their tires will be more apt to give the full service of which they should be capable.

Every manufacturer and supply house can rely on prompt shipment of complete Schrader Valves; Schrader Valve Caps and Valve Insides, packed in metal boxes of five each; Dust Caps; Rim Nuts; and Bushings.

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Manufacturers of Schrader Valve Insides, Valve Caps and Tire Pressure Gauges

SCHRADER

TIRE VALVES

THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XII. MARCH 25, 1923 No. 12

"RUBBER TAX PAYS OUR DEBT," SAYS CHURCHILL

Rubber Tax Provision Under Stevenson Plan Is One of Principal Means of Paying British Debt States Former Head of Colonial Office.

In a statement cabled to the London *Evening Standard* on March 12, Winston Churchill defends the Stevenson plan of rubber restriction and adds that it is one of the principal means of paying the British debt to America. Mr. Churchill adds: "Before the Stevenson scheme was brought into force at the end of last year we were selling our rubber around about sixpence per pound, that is to say, far below the cost of production. On this basis the plantations could not have been maintained, and the whole industry, in which quite 100 millions of British capital had been sunk, was falling into ruin.

"We were surely under no obligation to supply the United States with rubber below the cost of production. I do not believe that the United States rubber manufacturers will be at all injured by the measures taken to secure a staple price for rubber at levels which will enable the industry to exist. On the contrary, some of their best authorities have expressed the opinion that stabilization at two shillings per pound would afford a perfectly satisfactory basis for American manufacturers and would be preferable to the violent fluctuations which otherwise would have followed on the bankruptcy of the producers and the collapse of so many plantations.

Ruin of Plantations Feared

"From another point of view it was impossible for the Colonial Office to witness the financial ruin of the rubber-producing colonies owing to the continued sale of their products below the cost of production. The exhaustion of the rubber plantations would be fatal for many years to the prosperity of the Malay States and would greatly injure Ceylon. No question of free trade or protection was involved, the guiding principle being solely that of conservation of the natural products of these colonies."

NEWS FIRST!

Acting in the belief that most readers of THE RUBBER AGE are mainly interested in the current news of the rubber industry, and believing that the News Section is consulted first, we will hereafter give the current News Section the place of prominence in all issues by placing it at the beginning of the magazine. This departure is effective with the present number.

The News Section will be followed by technical and other longer articles. The market news, patents, new incorporations, statistics, etc., will retain their present position at the end of the editorial pages.

Readers of THE RUBBER AGE are thus able to easily find any desired information in each issue because the editorial contents are logically arranged for easy reference. Every item in its proper place, exactly where—and when—you expect to find it!

"News while it is news"

DE LISSER REPLIES TO CHURCHILL STATEMENT

President of Rubber Association States that American Manufacturers Do Not Want Rubber Below Cost—Restriction Threatens Industry Here and Abroad.

NEW YORK, March 20.—In a bulletin issued today, Horace DeLisser, President of the Rubber Association of America and Chairman of the Board of the Ajax Rubber Co., replies to the cabled remarks of Winston Churchill, former head of the British Colonial office and states, in brief, that American rubber manufacturers do not seek a supply of crude rubber below the cost of production nor does the Rubber Association of manufacturers seek the financial ruin of plantation owners.

Mr. DeLisser also announces that Secretary of Commerce Hoover has accepted

(Continued on Page 448)

PHILIPPINE AGITATION NOT SERIOUS, SAYS BOIS

Sir Stanley Bois in Statement Minimizes Activity Regarding Growing Rubber in Philippines—Agitation Is not General on Part of American Manufacturers.

In an interview in the London Financial News recently, Sir Stanley Bois, a member of the British Rubber Growers' Committee which toured this country in January, states that there is little to fear from the present activity in this country in the matter of the possibilities of growing rubber in the Philippines. The appropriation of $500,000 made by the House Appropriations Committee was barely sufficient to cover the cost of an investigation and there was no fear that this sum would be used as a nucleus to start new plantations.

Sir Stanley Bois said in part:

"It must be borne in mind that the Americans have a perfect right — and, indeed, it is their obvious duty— to investigate the possibilities of all territories in any way under their control, and I do not see in this decision of the House Appropriations Committee anything more than a desire to ascertain one way or another whether these territories are fitted for the cultivation of rubber. It is obvious that the investigation must take some time, and the provision of $500,000 would be no more than sufficient to meet the cost of mere investigation. I do not see, therefore, how at this juncture the matter can be looked upon as an effort to 'break the British rubber trust.'

"Moreover, it is questionable whether the labor conditions, etc., in the Philippines are such as to encourage any extensive investments of American capital in rubber planting with the product at anything like its present price, or even at a higher price.

"It cannot be too fully realized that the agitation, of which this move is the outcome is not by any means a general one on the part of American manufacturers, the great majority of whom appreciate the position and are only anxious to see a reasonable stability in the price of the product, irrespective of

(Continued on Page 442)

SEIBERLING SHOWS 1922 PROFITS OF $56,878

Total Sales for Year are $3,845,779—Showing Considered Encouraging Because Sales Were Mostly Secured After April 1—Sales Prices Low in this Period.

Sales of the Seiberling Rubber Company for 1922 were $3,845,779.55 and the net profit, after payment of interest and all proper charges, including full dividends on Portage preferred stock, was $56,878.87.

These figures are taken from the annual report of the company made at the annual meeting of stockholders on March 12th.

Sales and profit figures were considered especially encouraging, inasmuch as the sales volume, almost in its entirety, was secured after April 1st, 1922, and during a period that marked the lowest prices on tires and in margins of profit, ever known in the tire industry.

President F. A. Seiberling, in his annual statement, says:——

"Since the first of January, prices have been advanced approximately eight per cent, bringing margins of profit more in balance with the average of former years, and, from tentative figures available, have enabled the company to make a profit in the past two months equal to that of the previous year.

"Our product has, within the past year, had a wide introduction in every state and territory in this country and in some foreign countries, has given excellent service, and laid a foundation of good-will that is bound, under proper handling, to grow steadily in value.

Our gross sales for February exceeded $600,000.—the largest of any month in our history, which augurs a much increased volume during the summer months, and for the year more than double the amount of 1922.

"We have reason to anticipate a satisfactory business for the year 1923, with a reasonable profit showing at the end of that period, notwithstanding that margins of profit are at the moment below the average of former years."

The election of Directors brought only one change — B. O. Elting of Barberton, replacing George W. Crouse of Pittsburgh.

F. W. Pitcher

F. W. Pitcher, treasurer and general of the Easthampton Rubber Thread Company for the last 20 years and for a similar period president of the Revere Rubber Company, died on March 11 at his home in Easthampton, Mass., after a long illness.

He was born 89 years ago and spent his boyhood in the vicinity of Bangor, Me. As a young man he became associated with extensive lumbering enterprises. He became nationally known, however by his long leadership in the rubber industry. He was president of the Easthampton Savings Bank and a director of the Cotton & Woolen Manufacturers Mutual Fire Insurance Company, the Rubber Manufacturers Mutual Fire Insurance Company and the Industrial Mutual Fire Insurance Company, all of Bosten.

He is survived by his wife Mary Stevens, a daughter, Mrs. Harry Lewis of Beaver Falls, N. Y., a brother, H. G. Pitcher, Aurelia, Iowa, and two sons, Walter F. Pitcher of Joliet, Ill., and William L. Pitcher, who was associated with his father in the rubber business.

Mason Issues $2,000,000 Bonds

The Mason Tire & Rubber Co., Kent, Ohio issued on March 1 $2,000,000 First Mortgage Twenty Year 7 per cent Gold Bonds for the purpose of retiring $665,000 serial notes and land mortgages and the balance for working capital. The issue is being handled by Brooke, Stokes & Co., New York and Hyney, Emerson & Co., Chicago.

Wright Made Factory Manager

L. E. Wright of the Howe Rubber Corporation has recently been made Factory Manager in addition to his capacity as Chief Engineer. He has taken J. T. Johnson's place who recently resigned to go with the American Tire and Rubber Company.

Mr. Wright has had a broad industrial engineering experience, having designed and supervised the erection and installation of the manufacturing equipment in a number of the large manufacturing plants throughout the East.

The present Howe rubber plant, which was erected in 1915-16, was mostly planned and equipped by him and in 1919 he was prevailed upon to give his entire efforts to this company. Since this period he has been a close student of the Howe products and his engineering ability is reflected throughout the plant which is one of the most efficient of the smaller tire and rubber manufacturing plants in the country.

Philippine Agitation Not Serious Says Bois

(Continued from Page 441)

the actual figure. In this connection it should be taken into account that many American manufacturers incurred serious losses by being compelled to write down to 7d and 8d per pound large inventories of rubber which had been bought forward at 2s to 2s6d per pound.

"The great majority fully realize that —taking the long view—their prosperity as manufacturers depend upon the prosperity of the producing interests. This is the universal belief of all thinking men."

Report of Inventory—Production—Domestic Shipments of Pneumatic Casings—Inner Tubes—Solid Tires

December, 1921 to January, 1923

"Production" and Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.
"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and as a total represents all tires and tubes still owned by manufacturers as a domestic stock.
"Shipments" includes only stock forwarded to a *purchaser* and does not include stock forwarded to a warehouse, branch, or on a consignment basis, or abroad.

(Compiled by The Rubber Association of America, Inc.)

	PNEUMATIC CASINGS				INNER TUBES				SOLID TIRES			
MONTH	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments
December, 1921	64	3,696,519	1,839,738	1,980,264	64	4,731,021	2,070,098	2,522,710	10	168,515	40,478	39,520
January, 1922	66	4,174,216	2,055,134	1,596,806	66	5,246,647	2,343,393	1,889,724	11	181,769	40,224	33,294
February, 1922	66	4,691,329	2,084,308	1,562,365	65	6,141,956	2,596,774	1,702,583	11	183,448	39,492	36,805
March, 1922	63	5,183,286	2,645,790	2,073,963	63	6,991,118	3,017,511	2,090,737	11	182,197	49,433	48,350
April, 1922	65	5,464,336	2,401,187	2,086,651	65	7,230,096	2,650,573	2,329,343	11	173,748	46,664	52,309
May, 1922	65	5,523,095	2,721,503	2,639,273	65	7,189,552	2,970,696	2,938,947	11	170,904	57,640	60,711
June, 1922	64	5,042,147	2,838,890	3,133,260	64	6,186,534	3,130,629	3,973,679	11	169,808	66,089	63,408
July, 1922	63	4,834,106	2,476,636	2,695,095	63	5,675,839	3,068,199	3,630,744	11	176,375	71,505	60,425
August, 1922	63	4,629,392	2,905,209	3,029,823	63	5,207,228	3,808,224	4,220,055	11	189,698	84,313	69,435
September, 1922	64	4,612,037	2,504,744	2,502,106	64	5,164,757	3,501,442	3,558,971	11	200,016	82,767	66,797
October, 1922	64	4,682,958	2,674,662	2,588,770	64	5,488,033	3,787,758	3,420,680	11	213,942	85,480	71,275
November, 1922	62	4,964,976	2,733,134	2,379,708	61	6,210,053	3,850,908	3,075,023	11	234,684	85,775	61,466
December, 1922	59	4,599,208	2,656,942	2,934,079	59	5,732,125	3,411,074	3,825,949	10	244,061	77,221	64,570
January, 1923	62	4,695,916	3,127,270	2,994,297	62	5,838,310	3,951,885	3,748,651	11	262,462	83,383	60,611

UNITED STATES ADVANCES TIRE PRICES 10 PER CENT

The first step in a general tire price increase is seen in the 10 per cent increase in tire prices announced by the United States Tire Company, effective March 15. Crude rubber and cotton have advanced appreciably in the past two months and the present increase was attributed to this advance.

Now that the U. S. has taken the initiative it is expected that Goodyear, Goodrich and Firestone will follow suit. The many reports that have been circulating in the industry are at last bearing fruit and the increase announced does not therefore take the manufacturers or retailers by surprise.

Further Increases Announced

AKRON, March 17.—Following close on the heels of the tire price increase of the U. S. Rubber Co. last week, comes the announcement to-day that Goodrich, Goodyear and Miller have increased tire prices 10 per cent. Firestone is holding back, as in the advances of last December, and probably will not make an announcement for a week or ten days.

Changes in Marathon Rubber Products

A. Burnett has been appointed General Manager of the Marathon Rubber Products Co., Wausau, Wis. Mr. Burnett was previously General Superintendent of the Chicago Clothing Company and held the same position for Rosenwald and Weil, prior to the War. He also has had considerable experience with the largest rubberizing concerns in England, having at one time been chemist in the laboratory of Dr. C. Otto Weber.

Frank R. Stone, who for 20 years was very active in the Chicago Branch of the U. S. Rubber Co., has been appointed District Sales Manager with headquarters at 314 South Franklin St., Chicago, covering the territory of Illinois, Indiana, Ohio, Lower Michigan, Pennsylvania and New York. He is a well known figure among the buyers in Chicago.

G. B. Stacy, for many years with the Chicago Rubber Clothing Co., has been appointed District Sales Manager with headquarters at Minneapolis, Minn., covering the Middle West territory. He has had over 30 years active connection with the rubber industry and was at one time General Manager of the Pittsburgh Rubber Co.

Tire Price Increase in United Kingdom

Retail prices of solid tires have been advanced 10 per cent by British manufacturers. No changes have been made in the retail price of pneumatic tires. The Dunlop Company has circularized the trade, offering discounts of 32½ per cent plus 7½ per cent on fabric tires to clear stocks and permit concentration on cord tires. (Cable from Commercial Attache Walter S. Tower, London, March 3)

Brunswick Personnel Changes

The Brunswick Balke Collender Company announce the appointment of Jas. M. Morgan, as district representative, operating out of Pittsburgh Branch; E. H. Schroeder, operating out of Baltimore Branch; A. J. Anderson, operating out of Cleveland Branch; Clarence A. Welch, operating out of Indianapolis Branch, and F. E. Walsh, operating out of New York Branch.

A. B. JONES RESIGNS AS PRESIDENT OF KELLY

At the annual meeting of the Kelly-Springfield Tire Co., held on March 13, A. B. Jones resigned as President and Director, effective immediately. Mr. Jones had been with Kelly for two years,

ALFRED B. JONES

previous to which he was vice-president of Goodrich.

No successor has as yet been named but it is understood that the name of the new president will be announced in a week or ten days. Mr. Jones has been succeeded on the Board of Directors by H. L. Moses, General Counsel for Kelly-Springfield. Mr. Jones has made no announcement of his future plans.

Tillinghast Plant Burned Down

A fire on the evening of February 16 destroyed the plant of the Tillinghast Rubber Company, Stockton, N. J., causing a loss estimated at $100,000. Several fire companies from nearby towns rushed in, but the flames had made too much headway to be controlled, and lack of water proved a serious handicap. The company, which manufactures rubber balls, tubing and rubber toys, has only been operating since last November.

ASSOCIATION FOR RUBBER EXPORTS IS FORMED

WASHINGTON, March 15. — There were filed today papers with the Federal Trade Commission for incorporating under the Webb-Pomerene Export Trade Act, the Rubber Export Association, for the purpose of exporting rubber products. The following concerns are allied in this incorporation: the United States Rubber Export Company, Ltd., of N. Y., the Goodyear Tire & Rubber Export Company, Akron, Ohio, and the Miller Rubber Export Company, New York.

The Rubber Export Association, as at present constituted, is an association formed under the provisions of the Webb Export Trade Act passed by Congress in 1918, the purpose of which, in brief, was to abrogate certain of the restraints of the anti-trust laws insofar as such restraints were applicable to associations (within the meaning of the Webb Act) engaged solely in export trade.

Certain powers of supervision over associations organized under the Webb Act are vested in the Federal Trade Commission, associations in the first instance being required to file with the Commission copies of their organization papers and full statements of the proposed methods and plans of operation and reports of operations annually thereafter. It is the intention of the present members to invite into membership the other principal American exporters of tires and rubber goods.

The three companies will use their own individuality and trade marks, but will maintain joint offices abroad, with a single sales force. J. B. Tower, of New York, has been named secretary. Offices will be maintained at 1790 Broadway, New York.

The officers of the association are: A. M. Cameron, President, and R. H. Byrne, Akron, and E. H. Huxley, New York.

Monograph on Dutch East Indies

An outline monograph of facts affecting the importation of rubber products into the Dutch East Indies has been prepared by A. M. Walker of the Rubber Division of the Department of Commerce, Washington and is ready for distribution to the trade. This article extends over 18 typewritten pages and is too long to print in these pages in full.

To show the comprehensiveness of the report an outline is given here. It is divided into five sections as follows: Section 1, All Rubber Manufacturers; Section 2, Tires and Inner Tubes; Section 3, Mechanical Rubber Goods; Section 4, Footwear and Clothing; Section 5, Sundries and Specialties.

Section 1 contains information of the following: total imports of rubber manufactures; total U. S. Exports to Dutch East Indies; custom duties on rubber manufactures; local rubber manufacturing; standards; lists of dealers; statistics and sources; shipping, banking, parcel posts; general observations. The other sections contain similar information on the various lines mentioned.

KELLY INTRODUCES NEW AIRCORE CUSHION TIRE

The Kelly-Springfield Tire Co., has placed on the market a new cushion tire called Aircore. It claims many points of superiority for this tire over the more common "garden hose" type of cushion tire.

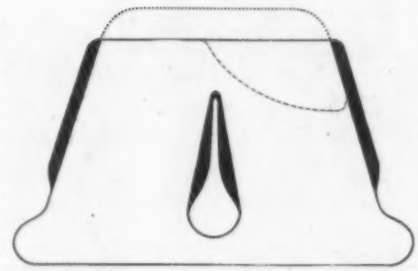
The Aircore cushion tire is formed with a hollowcore containing air at atmospheric pressure, thus supplementing materially the cushioning effect obtained from the traction and displacement notches cut in the side walls and tread. The double cushioning effect thus obtained, it is claimed, practically equals the resiliency of a pneumatic tire with none of the blow-out, puncture or other loss-of-air troubles inherent in the latter.

The shape of the opening or hollow

Cut showing tread of Kelly Aircore Cushion Tire.

center resembles a spear head which, it is claimed, permits of a deflection of from one-half to three-quarters of an inch under normal loads and equals the average deflection of a properly inflated pneumatic tire.

This tire is intended for service on the front wheels of all but the heaviest trucks and for the rear wheels of trucks requiring resiliency with high speed and economy. It is made in all sizes ranging from 34 x 4 to 36 x 10. The prices are less than the equivalent pneumatic truck tire but somewhat greater than the Caterpiller tire made by the same company.



Cross section of the tire when subjected to a normal load. The outline changes to conform to the heavy lines in the above cut.

Republic's Reorganization Plan

Details of the reorganization plan of the Republic Rubber Company were announced on March 13. The corporation's receiver, C. H. Booth, notified stockholders that it is planned to authorize $2,000,000 of twenty-year 7 per cent bonds, $4,000,000 of ten-year 7 per cent, debentures and 50,000 shares of no par value common stock. The program involves issuance of all the bonds, $2,000,000 of debentures and 41,000 shares of common stock. Stockholders will have the opportunity of buying for $100 a bond for that amount and one share of common, or for $250, a bond of the par value of $100 and $187.50 in debentures and two shares of common stock.

In event the stockholders' cash subscriptions shall total less than $1,100,000 the Reorganization Committee reserves the right to reject all subscriptions. Rights to subscribe expire April 1. The bonds will be used to pay the obligations incurred by the receiver for the property, while the debentures will be taken by creditors in settlement of their claims.

JANUARY RUBBER EXPORTS SHOW LARGE INCREASES

Owing to heavy factory shipments during December, not all of which appeared in the official export statistics for that month, January exports of rubber goods increased to about the level of October and November, the total value being $2,932,900. There were 126,810 automobile casings exported during the month. During January, 1922, the total value of rubber exports was only $2,231,257, and only 80,288 casings were exported.

For the first time since the change in the export classification it is now possible to compare corresponding months in detail. The following table of exports by classes during January, 1922, and 1923, shows increased quantity shipments of every important class except rubber shoes and rubber thread. Export values are lower than a year ago except for rubber shoes, hard rubber goods, and the class including miscellaneous rubber goods. For a large number of the important classes exports in 1923 are more than double the quantity for January, 1922, the percentage of quantity increase for the entire list being about 70 per cent as compared with a value increase of only 31 per cent. The lower export prices and the increased attention given to export business is chiefly responsible for our growing volume of exports, which is also influenced by the slowly improving economic situation in many of our export markets. Detailed figures follow:

January Rubber Exports

	Unit	—JANUARY, 1922— Quantity	Dollars	—JANUARY, 1923— Quantity	Dollars
Reclaimed rubber	pounds	149,423	15,472	403,657	33,578
Rubber, scrap and old	"	814,009	48,012	1,041,686	49,777
Rubber boots	pairs	6,055	17,731	19,872	46,179
Rubber Shoes	"	54,387	46,773	25,764	24,653
Canvas rubber-soled shoes	"	109,252	90,428	319,123	234,649
Druggists' rubber sundries	pounds	34,621	41,391	58,921	57,837
Battery jars and accessories	"	5,576	1,413	56,211	25,059
Other hard rubber electrical supplies	"	10,227	3,793	36,858	16,330
Other hard rubber goods	"	34,590	24,225	29,392	26,006
Automobile casings	number	80,388	1,148,092	126,180	1,378,217
Other casings	"	1,647	5,246	11,175	39,762
Automobile tubes	"	48,933	116,345	80,547	134,792
Other tubes	"	1,179	1,281	4,878	4,971
Automobile solid tires	"	3,822	147,641	8,031	183,803
Other solid tires	pounds	22,610	8,231	41,439	11,129
Tire repair materials	"	22,340	10,293	55,771	24,380
Rubber Belting	"	151,006	79,610	309,921	153,079
Rubber Hose	"	175,073	73,210	352,623	125,905
Rubber Packing	"	55,442	29,246	95,589	43,023
Rubber soles and heels	"	70,332	36,831	171,562	62,973
Rubber thread	"	80,492	102,018	55,348	52,277
Other rubber manufactures	"	325,055	183,972	342,523	204,521
TOTAL			$2,231,257		$2,932,900

Brazil to Aid Domestic Rubber Factory

Brazil in a recent decree has provided for a substantial subsidy for the Companhia Brazileira de Artefactos de Borracha, according to Consular advises to the Department of Commerce. To receive the aid provided for, the company must install additional machinery and have the plant in operation within two years. It is required that the annual output of the completed factory necessitates the consumption of at least 20 metric tons of Brazilian rubber per year. The company is to be guaranteed a return of 6 per cent on the capital invested for three years. Additional premiums are also provided for.

Theodore E. Smith Injured

While crossing the street in front of the Ohio Building, Akron, on Saturday morning, March 10, Theodore E. Smith, former Editor and Publisher of the *India Rubber Review*, was struck by a truck and sustained a compound fracture of the left leg and lacerations of the scalp. Mr. Smith was taken to the City Hospital and is reported doing well.

Name of Tirometer Valve Changed

Announcement has recently been made of the change in the name of the Tirometer Valve manufactured by the Paul Rubber Co. to the Air-Gage Valve. A number of improvements have been made in the valve.

U. S. RUBBER PROFITS OF $12,662,111 IN 1922

Total Sales for 1922 Are $168,786,350—Showing an Increase of $4,079,729 Over 1921—C. B. Seger States that Outlook for 1923 is Encouraging.

NEW YORK, March 8.—The annual report of the United States Rubber Company, for the year ending Dec. 31, 1922 was issued today by C. B. Seger, Chairman of the Board.

Sales for the year amounted to $168,786,350, being an increase of $4,079,729 compared with the sales for 1921.

Because of the lower range of selling prices comparison of dollar volume of sales with previous years is not fairly indicative. Considered on a basis of tonnage or units, the volume of business for the year 1922 was substantially in excess of that for 1921 in all principal products, especially in tires and mechanical goods.

***Profits Close to* $13,000,000**

Net profits from operations for the year amounted to $12,662,111. It was found necessary to make several reductions in the selling prices of tires from those in effects as of January 1, 1922, which were already too low as compared with the cost of production. This materially affected the results for 1922.

Interest on funded indebtedness amounted to $4,970,072, leaving a net income for the year of $7,692,039, after all interest and other charges. This compares with net income of $492, 811 for 1921. Dividends on the Preferred Stock for the year amounted to $5,538,718, leaving a surplus for the year of $2,153,321.

The consolidated surplus amounted to $32,097,821, current assets amounted to $120,627,062, and current liabilities amounted to $39,144,305.

The current assets consisted of $12,104,575 cash, $42,416,646 accounts and notes receivable from customers, $2,439,706 accounts, notes and loans receivable other than from customers, $40,628,274 inventories of finished goods, $23,037,861 inventories of raw materials and supplies and goods in process.

***Bank Loans Reduced* $11,130,000**

The current liabilities consisted of $25,080,000 bank loans. $14,064,305 accounts payable and accrued liabilities. Bank loans were reduced $11,130,000 during the year.

Accounts payable and accrued liabilities increased $1,723,349 as compared with the first of the year, principally in connection with acceptances payable for importation of crude rubber.

Inventories of finished goods were taken at cost of production, which represents sound values. These inventories could not be replaced at these values, with raw materials at the prevailing market prices.

Inventories of raw materials and supplies were taken at cost prices, which in practically all cases, especially crude rubber, were materially below market prices, and in no case higher than market prices.

Contractual liabilities, representing forward commitments for raw materials and supplies, amounted to approximately $10,000,000, all of which were at prices below current market, and as to quantities covered future requirements for conservative periods.

On December 1, 1922 the company retired $6,000,000 of 7 per cent Secured Gold Notes, due December 1, 1923, being all of said issue. This released $9,000,000 of the company's 5 per cent First and Refunding Mortgage Gold Bonds, due January 1, 1947, which had been deposited as security for the notes. $7,000,000 of the 5 per cent bonds so released were sold to provide funds for the retirement of the 7 per cent notes, and the remaining bonds, amounting to $2,000,000, are held in the Treasury. The company had an opportunity to sell the 5 per cent Bonds at a favorable price, and while the 7 per cent Notes would not have matured for another full year, it was considered advisable to take advantage of this opportunity to sell the bonds and thus substitute long-term bonds for the short-term notes.

$970,000 of funded indebtedness were retired during the year, through the operation of the sinking funds, being $790,000 of 5 per cent Bonds and $180,000 of 7½ per cent Notes.

The total outstanding funded indebtedness, after giving effect to the foregoing transactions, amounted to $85,981,800, a net increase of $30,000 as compared with the first of the year, against which, however, a saving of $123,000 was effected in the annual interest charges.

The development of rubber plantations owned by the company progressed satisfactorily. The properties are located in Sumatra and on the Malayan Peninsula. Those in Sumatra comprise a total of 88,659 acres, of which 48,917 acres have been planted and about 43,600 acres of the planted areas are in production. Those on the Malayan Peninsula comprise 22,226 acres, of which 10,311 acres have been planted, with about 1,500 acres in bearing.

The ownership of these plantations enables the company to obtain from its own properties a constantly increasing supply of crude rubber, uniform qualities.

The rubber produced on these plantations is taken over by the United States Rubber Company at current market prices, and enters into its manufacturing costs at these prices. On this basis the plantations have produced a profit, except for a period of extreme low prices during 1922, and the plantation companies have accumulated a surplus after providing conservative reserves for amortization of the cost of the properties. No part of the profits or surplus has been included in the results of the United States Rubber Company.

The company closed the year in a strong financial condition, as indicated by the balance sheet, and as to inventories of finished goods and raw materials, including forward commitments, is in a favorable position. The business outlook for 1923 was reported as being encouraging.

The detailed income and expense account of the company for 1922 and 1921 follows:

	1922.	1921.
Net sales	$168,786,350	$164,706,621
Cost of mfg. t'x's, etc.	156,124,240	*164,213,810
Net profits	$12,662,110	492,811
Interest on debt	4,970,071	.....
Net income	$7,602,039	$492,811
1st pref. divs.	5,520,000	5,440,000
Canadian sub. divs.	18,718	18,718
Common divs.	.....	1,620,000
Surplus for year	$2,153,321	†$6,585,907
Prof. & loss surp.	32,097,821	30,048,439
Earned on pref.	11.80%	0.72%
Earned on common	2.65%	.....

*Including inventory assessment. †Deficit.

C. O. BRANDES

BRANDES ORGANIZES EXPORT CONCERN

C. O. Brandes, well known in the rubber export field, announces that he has organized an export company with offices in Cleveland at 5511 Euclid Ave., and in New York at 31 Water Street. The company is known as The Brandes Foreign Merchandising Company. It is planned to serve manufacturers to develop their foreign trade by handling sales promotion work as well as by financing foreign orders.

Mr. Brandes is an experienced export man, having received his early training with export merchants in England and Germany. On his return to this country in 1913 he became connected with the Firestone Tire & Rubber Company, organized its export department and was its Export Manager until he came to Cleveland. The following Board of Directors has been elected: R. G. Nierman, Ralph F. Henn, J. E. Graham, George H. Eichelberger and C. O. Brandes.

RUBBER ASSOCIATION OFFERS AID TO HOOVER

Committee of Leading Manufacturers Appointed by Rubber Association to Cooperate with Government in Making Survey in Philippines and Amazon.

NEW YORK, March 11.—Secretary of Commerce Hoover was informed by the Rubber Association of America today that its directors had accepted his invitation to assist the Department of Commerce in making a world survey of new sources of crude rubber. By designating a special committee the Association pledged the cooperation of practically every rubber manufacturer and producer in the United States.

Although the assistance of the Rubber Association committee will be un-official its members will, nevertheless, be in a position to supply the government with invaluable data and information because of the fact that American rubber interests have for many years searched the globe for new sources of supply and a few companies have been developing their own plantations in the Far East. When the recent Congress authorized Secretary Hoover to undertake the investigation and provided him with an emergency appropriation of $500,000, it was said that the survey would probably center in the Philippines and Amazon Valley in South America because rubber only grows in productive quantities ten degrees either side of the Equator. During the past few years, however, most of the rubber consumed has come from plantations. Last year the amount of wild rubber imported into the United States amounted to only 14,040 tons while the importation of plantation rubber reached 276,649 tons.

Members of the unofficial advisory committee of the Association which will aid Secretary Hoover are:

H. Stuart Hotchkiss, Chairman, (Vice Pres. United States Rubber Co.)

B. G. Work, (Pres. B. F. Goodrich Co.)

Horace DeLisser, (President, The Rubber Association of America)

A. H. Brown, (Meyer & Brown, Inc.)

William Pfeiffer, (Miller Rubber Co.)

William O'Neil, (General Tire & Rubber Co.)

P. W. Litchfield, (Vice Pres. Goodyear Tire & Rubber Co.)

In a letter to the Secretary of Commerce, A. L. Viles, General Manager of the Rubber Association wrote that in the absence of Mr. Hotchkiss, who is in England acting as liaison officer between the Rubber Association of America and the Rubber Growers' Association of Great Britain, C. B. Seger, President of the United States Rubber Company, would act as Chairman. The other alternates appointed are:

G. M. Stadelman, (Vice Pres. Goodyear Tire & Rubber Co.)

W. O. Rutherford, (Vice Pres. The B. F. Goodrich Co.)

J. C. Weston, (President, Ajax Rubber Co.)

W. E. Bruyn, (L. Littlejohn & Co., Inc.)

General Manager Viles today also sent a letter to all members of the Rubber Association reporting the action taken by the Directors on the subject of the restriction of crude rubber exports. The Directors unanimously approved the following recommendations to the committee which recently visited the United States from the Rubber Growers' Association of London.

"1. That the Stevenson plan for the restriction of crude rubber exports from British Dominions be abolished in its entirety, this recommendation being predicated upon the firm belief that the natural conditions of supply and demand now existing will fully protect the plantation industry.

"2. A request for immediate consideration by the Colonial Government's Advisory committee, of which Sir James Stevenson is the head, of the announcement by the British Colonial or the local Colonial governments that it use its discretionary powers with respect to the application of this scheme and release rubber without regard to quarterly periods or prices if necessary to prevent wild fluctuations as part of a speculative movement."

In reporting to the members of the Association the concensus of opinion of the Rubber Association, General Manager Viles wrote, as follows:

"After considerable general discussion of the situation, each member of the Board and the guests present were requested to express their views regarding the activities of the Special Committee and future procedure by the Association in this matter, and it was the unanimous opinion of all present, with the exception of Mr. Firestone, that the Special Committee had acted wisely and in the best interests of the industry and consumers of rubber products in negotiating with the Rubber Growers' Association of London for the reason that the members of that body were in a position to realize the needs of the crude rubber producers and, therefore, it was most necessary to acquaint them with the needs of the rubber manufacturers and consumers of rubber products in the United States and emphasize the mutual interest of these two most important groups in the probable effect of the Restriction Act and thus remove or minimize any element of danger.

"It was also the unanimous opinion that it would be unwise to attempt any other form of protest until we were quite sure that our negotiations with the Rubber Growers' Association had failed, but at this time it is our distinct understanding that the recommendations of our Special Committee are being considered by the Rubber Growers' Association and also by the Advisory Committee of the Colonial Government, of which Sir James Stevenson is Chairman. It was also agreed by all present, with the exception of Mr. Firestone, that if after a reasonable period of time had elapsed, we were satisfied that our negotiations with the Rubber Growers' Association had failed, that we should approach this problem most vigorously through the Rubber Association only with the full knowledge and co-operation of our Government as it is believed that the Association is so well fortified in every detail of endeavor relative to our industry and has the necessary machinery set up to proceed on a moment's notice in any emergency and, that to attempt to arouse the aid and sympathy of similar organizations, related or otherwise, may result in building up an unwieldy movement which will bring about confusion and misunderstanding and defeat our purpose.

"It was agreed that any form of protest decided upon by the Association should not be presented directly to any British Governmental office or body but through such instrumentalities as are or may be provided by the United States Government for the reason that your Directors feel that the individual citizen, firms, companies or corporations or groups should indicate their respect for and confidence in our own Governmental machinery and follow duly prescribed channels for functioning in matters of this kind. Therefore, the direct approach by individuals or commercial bodies such as this Association or other groups to a foreign government for the purpose of protesting against its laws might bring about complications which would prove embarrassing, if not dangerous, to our own Government and possibly to a large body of citizens not connected with our industry affiliated with enterprises in materials or products in which the foreign government might be concerned."

HODGMAN ESTABLISHES MAIN OFFICE IN NEW YORK CITY

The Hodgman Rubber Company has again established its main office in New York City, by the removal on March 26th of its executive offices and sales departments to the new National Association Building, 25 West 43rd Street, as mentioned on page 416 of the Feb. 25 issue of THE RUBBER AGE.

Comparatively few changes in location have been made by this well known concern since its establishment by Daniel Hodgman in 1838 at 27 Maiden Lane, corner of Nassau Street, where the business was carried on for a period of forty-one years.

From 1883 to 1898 the Company's wholesale and main offices were located at the corner of Broadway and Grand Street, while a retail store was maintained at 21 West 23rd Street.

In 1898 the main offices were removed to 593 Broadway, and again in 1903, to 806-808 Broadway, corner 11th Street.

Since 1915 the main offices have been located at the Company's plant at Tuckahoe, N. Y., although a sample room and city office has been maintained at 8 West 40th Street. This organization has had a long and eventful history.

Seiberling Dealers to Celebrate

The first birthday of the Seiberling Rubber Company will be celebrated in a unique way during the week of April 8th to 15th, by 2700 Seiberling dealers all over the nation, the week being announced by unusual publicity and national advertising, as Seiberling Performance Week.

The unusual celebration is based on a very simple fact,—i.e.,—"pleased folks talk." Each Seiberling dealer is taking that Seiberling Cord whose owner thus far, has sent most friends in for Seiberling Cords. Old, veteran casings, some of them with their treads worn clear through, will be on display, with a statement of the mileage given, and the name of the owner who was proved such a booster for the dealer and for the tire.

The exhibit of a tire which has run 16,000 miles, but which looks like new from the side, makes a very spectacular and novel combination. Special window displays and advertising material for the week are going forward in large quantities to help the dealers put over the celebration in a big way.

Rubber Bill Fails to Pass

The land bill introduced in the Philippine legislature in the session starting February 14, failed to pass according to recent cable advices. This bill was designed to attract outside capital to the Philippines by permitting individuals and corporations to obtain concessions of public lands, limited to 50,000 acres for each concession, for a period of 20 years. (See THE RUBBER AGE, Feb. 25 issue, page 376).

MILLER 1922 SALES EXCEED $24,700,000

Last Year's Sales Were 130 % of 1921 Totals—Profits Amount to $3,116,607—New Equipment Added to Permit Further Expansion.

The 1922 financial statement of the Miller Rubber Company, Akron, Ohio as announced at the annual meeting on March 9 shows a very satisfactory showing for the year.

The net sales for the year were $24,764,244.27 — which is 130 per cent of net sales for the year 1921 of $18,983,677.00. Total inventories amounted to $6,128,074.00 as compared with $3,981,922.00 at the end of the previous year. Raw materials and in process were taken at cost or market, whichever was lower.

After a liberal allowance for depreciation, obsolescence and interest charges, the net earnings, before provision for Federal taxes, were $3,116,607.00.

The regular, quarterly Preferred Dividends of 2 per cent were paid in September and December, 1922, and at the same time an additional 1 per cent was paid to apply on the deferred dividends. A like dividend was paid March 1, 1923, and the company has during the year purchased in the market for retirement the amount of Preferred Stock it was required to retire for the years 1921 and 1922.

Improvements and installation of equipment permitting of increased and economical production, addition of new lines for the fortification of the business as a whole, were installed during the year so that the company might be able to maintain its position in increased and economical production of superior merchandise.

The board of directors were unanimously re-elected. All the officers were also re-elected for the ensuing year, consisting of Jacob Pfeiffer, President; C. T. Grant, Vice-President; Wm. F. Pfeiffer, Secretary, Treasurer and General Manager; R. R. Jennings, Assistant Treasurer; and Chas. R. Wetsel, Assistant Secretary.

Mitsui Appointed Uehling Agent

Mitsui & Company have just been appointed exclusive representatives in Japan and China for Uehling CO_2 Recording Equipment and other Uehling power plant instruments and gages. The head office of Mitsui & Co. is located in Tokia and their New York branch office is at 65 Broadway. The Uehling instrument Company is located in Paterson, New Jersey. Many Uehling installations have been made in Japan and China without the aid of local representatives but it is believed that with the cooperation of the very able engineering department of Mitsui & Co. the Japanese and Chinese Uehling customers will be served to the very best advantage.

SAN FRANCISCO AS RUBBER CENTER

In a recent speech, Major A. M. Thompson, British Army retired, and a large planter in The Dutch East Indies, stated that San Fancisco is destined to become one of the largest centers for the receiving of rubber from the East Indies and for the manufacture of rubber products. He stated also that San Francisco has all the essentials required. It has water transportation directly connected with the railroads and has the proper climate and cheap electric power.

Akron and Trenton, look to your laurels!

U. S. RUBBER BUILDS TIRES ON FLAT DRUM

Announcement was recently made by the United States Rubber Co., that they have been building tires on a flat collapsible steel drum, subsequently bringing them to shape by inflation. This is the first time that this innovation has been called to the attention of the rubber industry though the manufacturers state that this process has been in use for a considerable period, announcement being held until the records of mileage in Royal Cords demonstrated its advantages.

It is claimed that this new process overcomes the lack of even tension in the cords of tires built on cores. Countless experiments were made and the resulting tires dissected. Finally it was found that by building the tire flat on a collapsible steel drum, the ideal cord tension conditions were obtained after inflation.

In the manufacture of tires by this method, the United States Rubber Co., uses its new web fabric, made of cords which have been impregnated with rubber latex. A more complete description of this process will appear in a later issue of THE RUBBER AGE.

Burdick Plant Opens

Operation was recently started at the plant of the Burdick Tire & Rubber Company, Noblesville, Ind. This factory has been in the course of construction for some time. President J. H. McDormitt stated that he expected the factory to be operating at full capacity within a few weeks.

Chillicothe Rubber Goes Ahead

At a recent meeting of stockholders it was decided to continue operation of the Chillicothe Rubber Co., Chillicothe, Ohio, under the direction of George Hupp as Manager. Stockholders decided to subscribe additional funds to meet obligations and furnish a working capital for future operation. It is planned to start with a production of 100 a day. The Sherman cord tire is manufactured by this concern.

GOODRICH 1922 SALES AMOUNT TO $93,649,710

Sales for 1922 Show Large Increase Over 1921—Earned $7,018,546 in 1922 Against Loss of $76,670 in Previous Year.

The B. F. Goodrich Company announces in its annual statement, net sales for 1922 of $93,649,710 against $86,687,339 in the previous year. Profits from operations last year totaled $7,018,546 against a loss of $76,670 in 1921. Net profits, after all charges for depreciation, interest and other accounts were $3,047,769, which after preferred dividends was equal to 73 cents a share on the 601, 400 shares of no par value preferred stock outstanding. After deductions for depreciation, interest, etc., in 1921, there was reported a deficit of $8,983,401.

The detailed statement for 1922 and 1921 follows:

	1922.	1921.
Net sales	$93,649,710	$86,681,339
Add reserve		§10,000,000
Total	$93,649,710	$96,687,339
Manufacturing expense	86,631,164	96,764,009
Profit	$7,018,546	*$76,670
Other income	835,283	1,112,056
Total income	$7,853,829	$1,035,386
Depreciation	2,094,188	1,956,445
Interest, etc.	2,711,872	4,746,225
Reserve		‡3,316,117
Net profit	$3,047,769	*$8,983,401
Preferred dividends	2,605,680	2,626,470
Common dividends		902,100
Surplus	$442,089	†$12,511,971
Earned surplus Dec. 31	10,794,614	10,194,527

*Loss. †Deficit. §Reserve at Dec. 31, 1920, for contingencies and approximate losses on raw material commitments for future delivery. ‡Reserve at Dec. 31, 1921, to reduce raw material commitments for future delivery.

ASSETS.

Current	$50,799,328
Employes stock account com.	966,549
Preferred treasury stock	894,400
Investments	4,825,418
Plant, equipment	31,426,551
Deferred	3,398,511
Total	$92,310,759

LIABILITIES.

Current	$16,359,507
First mortgage bonds	21,950,000
Reserves	1,809,122
Capital stock	52,192,130
Total	$92,310,759

Dunlop Appoints Kidder

E. H. Kidder has been appointed Sales and Advertising Manager of the Dunlop Tire and Rubber Corporation of America, Buffalo, N. Y. Mr. Kidder is well known in the tire industry having been connected with United States Tire Co., for a number of years and recently was New England Sales Manager of that company.

Grand Rapids Changes Name

As the result of the insistence of jobbers and dealers, who see the value in the name of Corduroy Cord tires, it was voted at the annual stockholders' meeting of the Grand Rapids Tire and Rubber Corp., to change the name of the Company to the "Corduroy Tire Company."

PRESENT RUBBER PRICES FAIR SAYS LITCHFIELD

New Rubber Plantations on American Soil Desirable but not Feasible nor Advisable Says P. W. Litchfield in Statement—Present Price Is Equitable.

AKRON, March 6.—"There is no division of opinion among American tire manufacturers as to the desirability of producing rubber on American soil," declared P. W. Litchfield, vice president of the Goodyear Tire & Rubber Co., in a statement issued today.

"But no one should be fooled into thinking that establishing rubber plantations in the Philippines is going to bring the price back to the levels of the last two years," he added.

"Rubber sold at this time a year ago for 16c a pound. Two years ago it was selling for 19c a pound, as against 34c today. But these are not normal figures. Ten years ago we had to pay as high as $1.30 a pound. And the price has never been below 50c up till the summer of 1920.

"New rubber plantations in the Philippines, even if they could be brought into bearing immediately, instead of after seven years, would not give the American people 16 cent rubber or 19 cent rubber. Rubber can't be profitably produced for that figure, in the Philippines, or anywhere else.

"The low-priced rubber of 1921 and 1922 represented distress sales. They represented as well heavy losses on the part of the plantation owners. Rubber was sold way below the cost of producing it. It sold at low figures because there was a huge surplus of crude rubber on the market.

"The plantation owners had been pushing production to the utmost due to the war and postwar demands. All of a sudden in the middle of 1920 that demand fell off. Manufacturers had large stocks in warehouses and under order; more than they needed indeed, for conditions within their own business had changed radically.

"There were large stocks of finished rubber products in warehouses and in tire stores. The stock of crude rubber that would normally have been used up within six months was adequate for a year or longer.

"Nobody wanted crude rubber. It was a drug on the market. And so the price dropped from 55c to as low as 14c. The plantation owners had to take what they could get.

"And the plantation owners who had been pushing production couldn't stop production over night. The rubber trees were producing latex every day regardless of the price it commanded. Their labor was under a three years' contract.

"This period of low prices was a very serious one, not only for the rubber growers but for all the industries depending upon rubber — and for all consumers. That situation could not have continued very long without the growers being forced to give up their plantation and let them go back to jungle, with the result that when rubber was in demand again and the supply was depleted, the price would sky rocket, and we would perhaps find ourselves paying a dollar a pound again as we did ten years ago."

Mr. Litchfield presented a table of rubber prices since 1909 as follows:

February average, 1909 to 1913,	$1.30	per pound.
February 1, 1915	.60	" "
February 1, 1916	.81	" "
February 1, 1917	.80	" "
February 1, 1918	.74	" "
February 1, 1919	.55	" "
February 1, 1920	.51	" "
February 1, 1921	.19	" "
February 1, 1922	.16	" "
February 1, 1923	.34	" "

"Plantation rubber sufficient to meet the worlds needs costs on an average around 25 or 30c a pound to produce," he continued. "The price would have to be from 30 to 35c a pound before new capital would be justified in starting plantations because of the heavy initial expense in clearing the jungles, in recruiting labor, in building mills, towns, roads, railroads and the like, and the further fact that the investor would have to wait seven years before he could begin to get anything back on his investment.

"It is only by more new plantations and large capital investments that we can be assured of an adequate supply and low prices for rubber for the future.

"And growing rubber runs into quite a bit of money. The British plantations have about $300,000,000 invested in the Far East. There are two American companies who have plantations in Sumatra, a Dutch possession. The United States Rubber Co. has between 40 and 50 thousand acres and the Goodyear company about 17 thousand.

"I said before that there is no division of opinion anywhere among American manufacturers as to the desirability of raising rubber in the Philippines if it can be done. But there are a number of economic and some political factors that have to be taken into account.

"Rubber cannot be raised any more cheaply in the Philippines than it can in Sumatra. Labor is higher in the Philippines and much less desirable for this particular work.

"Competition with the British plantations could only be made effective if the present ban on importing contract labor were lifted, permitting the use of Chinese coolies and Japanese laborers in clearing the plantations and in cultivating them.

"A number of investigations have been made from time to time of this situation and it may be that the Stevenson Act may bring about the amendment of the laws governing the islands.

"The American tire manufacturers have opposed the Stevenson Act because while restricting export only, it necessarily tends to bring about an artificial restriction of production, which we believe is economically unsound.

"We appreciate the situation of the rubber growers who have sustained huge losses, but we believe that the law of supply and demand will adjust this situation itself without restrictive legislation.

DeLISSER REPLIES TO CHURCHILL STATEMENT

(Continued from Page 441)

the offer of assistance made to the Department of Commerce by the Rubber Association in its survey of possible new sources of crude rubber and that the personnel of the committee was entirely satisfactory.

"Mr. Churchill in a recent statement published in London and this country," said Mr. DeLisser, "declared that the British rubber growers were under no obligation to supply the United States with rubber below the cost of production and that it was impossible for the Colonial Office to witness the financial ruin of the rubber producing colonies owing to the continued sale of their products below the cost of production.

"In the first place the Rubber Association of America, which represents 95 per cent of the rubber manufacturers in the United States does not seek a supply of crude rubber below the cost of production, nor does the association have the slightest intention of causing or witnessing the financial ruin of plantation owners. No industry can prosper on the adversity of another.

"It is because the Rubber Association of America, the largest consumers of rubber in the world, is convinced, after a most thorough investigation, that the policy of the British Colonies in restricting the exports of crude rubber threatens the whole rubber industry here and abroad, and that the Association is pressing the Rubber Growers' Association of London for a repeal of the restriction order or an immediate modification to permit greater flexibility in the supply of rubber.

"The Stevenson plan for restricting the export of crude rubber today threatens to introduce wild speculation in rubber prices. Its ultimate effect will be to curtail rubber production on the plantations. such a course would be ruinous to the rubber growers.

"Members of the Rubber Association are looking forward to a greater consumption of rubber during the summer. To take care of our needs this year and in the future, it is imperative that the planting of new rubber be encouraged. This association believes that the policy of the British colonies today will be far more injurious to the plantations than to the rubber industries of this country.

"In the meantime this Association has offered Secretary of Commerce Hoover every possible assistance in the Federal survey of possible new sources of crude rubber and today the association received a letter from Mr. Hoover accepting the proffered co-operation of the association and adding that he was 'entirely satisfied' with the personnel of the committee and greatly appreciated the assistance of the Association."

Mason Branch to Move

The Mason Tire and Rubber Company, Cleveland Branch will move April 30th to larger quarters from 1846 Euclid Ave., to 1597 St. Clair Ave., Cleveland, Ohio.

Mindanao—the Future Rubber Dominion?

Some Sidelights on What Has Been Done to Better Conditions for the Moro

The Philippine Laborer

This article written especially for THE RUBBER AGE, is by a citizen of the Philippines—a man well-versed in conditions in the Far East and a writer of repute on economics. In this article he takes up not so much the economic side of the Philippines as a rubber country, but rather the characteristics of the inhabitants of Mindanao. The labor problem in these islands is admitted to be a stumbling block in the development of extensive rubber plantations. It is hoped that the light thrown on the regeneration of the Moro, in the accompanying article, will serve its purpose. In a later article, the entire labor problem from the economic angle will be taken up.—EDITOR.

Breaking the Prairie Sod with Disk Plow—Mindanao

By Vicente Villamin

MINDANAO has been the scene of scrapping for centuries. The picturesque Moro is a born fighter. War was his sport. It was also his important vocation. He was the incarnation of preparedness. His roof might be leaking on his sleeping babe but his kriss and kampilan were always kept sharp and shining. His weapons were his trusted friends.

The Moro did not want to extend his acres; he was happy and satisfied in his own lot. Actual or imagined trespassers he repelled with fire and force. He led a nomadic life. And living in perennial suspicion he lacked neighborliness. His was a character of fierce determination and indomitable will. Every Moro was a fighting machine, deadly and destructive until completely broken down. The Moro of today is an industrious farmer, a supporter of good government, a fool-killer, a hopeful individual avid for progress and general tranquility. As if to break the monotony and to swell the martial echo of the stirring days not long past, he engages occasionally in fighting those whom he supposes are guilty of duplicity, oppression or grabishness.

Spain for years unwearily sacrificed many of her brave men to win the Moros over to the Catholic faith. Missionaries made martyrs of themselves in the vast wilderness of Mindanao. Spain in her noble efforts to bring the blessings of the Cross to backward peoples and the pagans of the earth found the stoutest resistance in Mindanao.

America inherited from Spain the task of pacifying this vast region. The Moros and pagans had become as hostile as ever. They interpreted their Christianization as equivalent to extermination. America at once realized that she had a serious situation on her hands. She did not buck from it an iota but attacked it in a way that challenged world-wide recognition.

How America Has Aided the Moro

Men like General Bates, Bliss, Bell, Scott, Wood and Pershing were there on the ground. These leaders adopted different methods of approach as the problem was military no less than religious and social. The common objective was, not to suppress the Moro, not to proselyte him, not to prepare him for exploitation, not to burden him with effete civilization, but to bring to him the message of peace and understanding all around, to save him from himself, to uplift him gradually as his needs require and finally to bring about the complete unification of the peoples of the Philippines.

The Moro became impressed with the power and authority of America. His friendship—for that was the coveted jewel—was won. He was reconciled to send his children to school, to have the sick in the hospital, to build roads to neighboring communities, to deal freely and peacefully with his kind and with the Christians and to trust less and less to the kampilan to settle differences.

A reduced number of untractable headmen unable to break away from warlike and philandering lives continued the fighting merrily which placed the soldier and the civilian alike always on the *qui vive*. Pitched battles have been fought in which hundreds of lives have been lost. These Moros will continue to be sources of troubles until the Creator calls them back to His fold. The best that had been done with them was to disarm them as fast as that could be effected either by force or persuasion.

Pacification of Mindanao by U. S. Army

The United States Army had done splendid work in the pacification of Mindanao. It is deserving of the profound appreciation of the Filipino people. The year 1913 saw Mindanao about primed up for the withdrawal of the military and the inauguration of civil government. A new Administration had taken up the direction of affairs in Washington. Francis Burton Harrison admidst unprecedented enthusiasm took up the reins of government in Manila. And soon afterward Frank W. Carpenter took the oath of office as the first civil Governor of Mindanao. The inspiring note of the situation was that there was nothing partisan or political about it and no political party, either here or out there, has claimed exclusive credit for the success of civil government in Mindanao. It was a big human problem to be dealt with in a human way, and humanity is the common prerogative of all good men.

The administration of Frank W. Carpenter was an unqualified success. If the details of his work are known he will have a place in the Hall of Fame and be pointed out as the American who has the making of a Rhodes, a Livingstone and other modern empire-builders. Francis Burton Harrison is also deserving of high commendation for the careful and broad-gauged statesmanship that he displayed in the affairs of Mindanao. Standing out as a worthy standard-bearer of his race is Teopisto Guingona, a Filipino, who became the second Governor after Governor Carpenter had been called to Manila to give his abilities broader scope for display. Governor Guingona can come to the White House in Washington and be recognized by the President for his great and magnanimous work for the Moros and pagans of Mindanao, ask for Independence and has his request seriously considered. Another Filipino, Vicente Pastre, then member of the Philippine Commission, lent his steadying hand to the delicate situation. He can confidently await the verdict of history on his work in Mindanao.

Today the peace in that region is only disturbed by the occasional outbursts of frenzied individuals running amuck

for reasons too deep to fathom and the depredations of natural malcontents, unbalanced fanatics and unreconstructed bandits. Order is maintained by the Insular police in which there are a good number of Moros and with the aid of Moro datos and chiefs. The schools and dispensaries have become veritable palaces of peace whence radiate the rays that stream right into the hearts of the once murderous Moros. Several Moros are receiving education in colleges in America. There are Moro young men and women in the schools in Manila where they have shown extraordinary aptitude and promise.

The Government aims to serve the people of Mindanao and to make that island a better place to live in. Able and tactful Filipinos are carefully selected to help in the administration of affairs there. The policy is to appoint Moros to positions of responsibility as fast as they qualify. Already the right of suffrage is being exercised by a good number of Moros. In a recent election for municipal president the Moros supported with enthusiasm the candidacy of a Christian Filipino who was elected. If these elections foster among the Moros the habit of verbal combats in preference to bloody battles they will have accomplished much to accelerate real progress.

Funds are advanced from the Treasury in Manila to help finance the activities of the government. Taxation and assessment are reduced, and their application made with great care and circumspection. In many cases the Moros have donated land, labor, produce and money to construct schools and hospitals. They have taken to education, sanitation and road-building with commendable alacrity. It is a sight that belongs to heaven to see former denizens of the mountain fastnesses in their barbaric habilaments sitting in solemn conclave with other Filipinos planning schoolhouses and providing for the needs of the children.

The Filipino youth is heeding the call of Mindanao.

Moro School Boys Learning Agriculture

Yearly promising men and women step out of the schools and universities and follow the gleam to Mindanao where hard and pioneering work awaits them. On the other hand, the number of Moro visitors to Manila and the Christian provinces increases as the years go by. In the work of inter-penetration and contact the Government is sparing no efforts. As a result there is perceptible flow of the tide of population toward Mindanao.

The Moro members of the Senate and House of Representatives in Manila who were supposed at first to be merely decorative and symbolical figures are effective and assiduous servitors of the public weal. They personify dignity, harmony and public service. Their efforts are directed to the extension of more educational facilities in Mindanao and Sulu, the construction of more hospitals, public buildings and roads, the cultivation of idle lands, the complete eradication of lawlessness and the consolidation of all inhabitants of the Philipines into one conscious indivisible unit under the competent and unselfish leadership of Filipinos both in the north and the south.

There is Mindanao in all its wide native expanse—fertile, healthful, peaceful and progressing. Her sub-soil is awaiting the plow to bring forth food and materials in abundance. Her forests need the whirring of machinery to yield valuable timber and the patient hand of man to collect variagated products. Destructive typhoons are hardly known. The climate is equable. The harbors are deep. And the people welcome enterprise and capital who would come not to work them but to work with them. Verily, Mindanao is a potential empire of wealth no less than a garden spot where a people may live in peace and contentment. And yet in Mindanao as no where, can we say with a sigh, "So much to do, so little done."

Where Shall Rubber Be Grown?

New Facts and Statistics on the Philippines Supplied by a Native Who Has Made a Study of the Problem

THE following information is taken from an article in *The Economic World* by Mr. Villamin. In it the author gives valuable information on the possibilities of Mindanao as a rubber producing country.

Where is the logical place for America to grow rubber? The Southern States are suggested. This plan, however, is conceded to be absolutely experimental and its success eminently improbable. Besides, conceding that rubber will grow there, it is an economic fact that whenever a staple produced in a temperate country is also produced in the tropical regions the latter in the end cut off the former from profitable production on account of the big difference in the cost of production.

South America is also suggested. Here, again, the same consideration of the "foreign flag" as in respect of the present sources obtains. The Philippines, under American sovereignty, offer the logical place. As the cost of labor in the Philippines is higher than in the Federated Malay States, the Straits Settlements or the Dutch East Indies, unless contract labor or immigration is permitted in the Philippines, it is to be expected that the time will come when America can advantageously place crude rubber on the dutiable list, the tariff not being operative at present in the Philippines.

The island of Mindanao alone, in the southern part of the Philippine Archipelago, has enough suitable acreage to produce the rubber requirements of America. Rubber trees are growing there now. The region is out of the path of destructive typhoons. There are deep-water harbors which can be developed into shipping points. By inter-migration and redistribution of labor, which the Philippine Government has already been undertaking, plenty of hands can be secured without resorting to labor importation, at least during the first years of the industry.

THE AREA OF MINDANAO ISLAND AND ITS POPULATION

Provinces	Area in Hectares.	Forests, Hectares.	Percentage Under Cultivation, 1920.	Population in 1918.
Agusan	1,112,146	1,036,795	.87	44,358
Bukidnon	1,002,589	488,215	.10	47,811
Cotabato	2,091,580	2,000,215	.04	169,191
Davao	1,938,874	1,778,640	1.68	119,304
Lanao	631,701	438,860	.78	94,946
Misamis	266,770	128,417	22.79	198,981
Sulu Islands	280,238	76,846	.20	167,975
Surigao	748,251	570,666	6.32	122,022
Zamboanga	1,653,197	1,385,365	2.08	147,991
Totals	9,725,346	7,904,019	*3.87	1,112,579

*Average.

Of this area 351,846 hectares are of private ownership. The

part under cultivation is less than 5 per cent. That the island needs development is shown by the comparatively small value of the present production. With adequate capital, Mindanao can be made to produce enormous quantities of raw materials. The following table shows the yield per hectare of different products and the value of production in the different Provinces:

Article.	Yield Per Hectare, 1920	Value of Production, 1919	Provinces.
Rice, pounds	1,315	$743,565	Agusan
Hemp, pounds	1,010	55,415	Bukidnon
Sugar cane, pounds	4,725	63,691	Cotabata
Cocoanuts, nuts	3,802	2,286,157	Davao
Tobacco, pounds	1,425	257,047	Lanao
Corn, pounds	1,770	3,937,671	Misamis
Maguey, pounds	1,980	13,919	Sulu
Cacao, pounds	1,550	3,004,258	Surigao
Coffee, pounds	2,275	5,984,191	Zamboanga
Rubber, pounds	800	.....	.....

The comparative yield to the farmer of the different commodities can be made more illuminating by multiplying the yield by the prices now obtaining in the market. Rubber will be found to lead all the rest in value.

In 1916 there were nearly 600 acres planted to rubber, with around 75,000 trees growing, and the following data have been obtained:

Yield Per Tree, Pounds.	Yield Per Acre of 100 Trees, Pounds.
0.60 at 4 years old	60.00
1.19 at 5 years old	119.00
1.50 at 6 years old	150.00
2.03 at 7 years old	203.00
2.91 at 8 years old	291.00
3.63 at 9 years old	363.00
4.17 at 10 years old	417.00
5.06 at 11 years old	506.00
6.22 at 12 years old	622.00

The actual number of trees planted to the acre averaged 120. The Stevenson Supplementary Report, on which the above-mentioned Ordinance was predicated, gives the following information as to yield per acre in British dependencies:

Age of Trees.	Pounds.
Under 5 years	Nil
Between 5 and 6 years	120
Between 6 and 7 years	180
Between 7 and 8 years	240
Between 8 years and over	320

The undeveloped state of Mindanao in comparison with the neighboring countries has kept the value of land down. It is illuminating to note that the cost of bringing land into cultivation for rubber is lowest in Mindanao, as may be seen in the following table:

Country.	Cost Per Acre to Cultivate.	Cost Per Acre of Upkeep.
Philippines	$50.94	$18.00
Sumatra	73.60	20.00
Java	109.94	23.00
Federated Malay States	137.42	29.00

The prevalence of terrific typhoons is asserted by some persons, as militating against the development of the rubber industry in Mindanao. If this is true, of course, God alone can change the conditions. But the whole thing has been thrown up as a scarecrow. Mindanao is reasonably free from those howling hurricanes that tear their way across the fields of the northern part of the Archipelago. Less typhoon-resistant plants than the rubber tree, like rice, hemp, sugar cane and the like, are grown profitably in Mindanao. Rubber is a strong tree, comparatively speaking, and typhoons should be the last thing to bother it. The following meteorological data will show the weather conditions prevailing in the greater portion of Mindanao. The data were furnished by the Philippine Weather Bureau, whose reputation for precision and for originality is of the highest among all the weather bureaus of the world:

Pressure (mean)	58.86	mm
Relative humidity (mean)	80.2	per cent
Vapor pressure (mean)	20.5	per cent
Evaporation free exposure (mean)	107.2	mm
Wind velocity (mean)	6,319.8	Km
Sunshine (total)	1,984	hours
Rainfall (total)	1,187.5	mm
Air temperature (mean)	79.5	F
Air temperature (maximum)	89.2	F
Air temperature (mean minimum)	72.7	F

The indefinite political status of the Philippines—which Congress can end any day, though unfortunately it has not yet done so—is the only thing that keeps American capital from developing the rubber industry in that country; and, for that matter, other staple industries also.

It is truly an economic crime that the foreign trade of the Philippines is today only $200,000,000 yearly, when, without over-working the natural resources of the Islands, it might easily be approaching $1,000,000,000. On account of the direct bearing of the political question on the development of the Philippines, a skeletonized statement with regard to the political problem, gaged from an economic angle, will here be attempted. There are four possible solutions to the Philippine question:

(1) *Fixation of Date of Independence.*—This will give due notice to all parties concerned to adjust their interests and policies accordingly; will give Filipinos a chance for preparations for the multitude of things they are to look after themselves such as developing commodity and money markets, arranging fiscal settlements with the United States, funding the bonded debt, mobilizing resources for national defense, etc.

(2) *Immediate and Absolute Independence.*—This will mean the abolition of free trade with the United States; the relinquishment of American backing on Philippine credit; the impairment of the export trade and its blighting reflex on local industries; the wrecking of the exchange; financial unpreparedness of the Government to meet mounting expenditures; and general economic confusion and calamity.

(3) *Incorporation as a Territory and Eventually as a State.*—This, on the one hand, will subject the country automatically to higher and more diverse Federal taxation, to the Eighteenth Amendment, the Coastwise Laws, and other Federal laws which, on account of the geographical location and the state of the social and economic development of the country, will prove a well-nigh unsupportable burden. On the other hand, helpful laws like the Farm Loan Act, the Rural Credits Act, the Federal Reserve Act, the National Bank Act, the Co-operative Marketing Act, Uniform Currency and others will be made operative in the Islands. It is pertinent here to state that a Territory of the Philippines can continue the percentage tax on sales of commodities destined for export to other parts of the United States, the Federal Supreme Court in a recent Pennsylvania case holding that such tax does not constitue a tax on inter-State commerce.

(4) *Complete Local Autonomy Under the Sovereignty of the United States.*—This will insure the continuance of tariff protection, the fiscal, commercial and other mutually helpful relationships between America and the Philippines; will enhance the feeling of security and promote stability; will give the United States a source of raw materials under the joint auspices of the dominion standard of the Philippines and the American flag; and will permit the untramelled development of the country for the benefit of Filipinos and Americans, as well as others.

Every attempt at a solution of the problem, to be fair and intelligent, should proceed from the following basic consideration: In the Philippines, on account of their advanced civilization patterned after the Spanish and the American, the living standard is very much higher, the social and political institutions are more developed, more elaborate and expensive than those in the surrounding tropical countries. Now, all their staple products with the exception of hemp, on which they have a natural monoply, are produced in those countries, which are more advanced than the Philippines in industry and agriculture. There are only 11,000,000 Filipinos as against over 100,000,000 cheap workers in the neighboring countries. The Philippines have not the advantage of distance to the consuming markets in the temperate regions. Their competitors are protectorates of European countries, whence the colonial enterprises are controlled by distributors and manufacturers of colonial produce and therefore in those markets Philippine exports will have only the second-choice position. The situation therefore resolves itself into this: To survive international competition, the Philippines must either have artificial protection like the tariff from a big consuming nation in the temperate zone or must reduce the cost of production of their commodities to competitive levels. Independence will do away with tariff protection from the United States. To place production on competitive bases means lowering the living standard to the level of the competitors.

The Super Tire—A Unit Without Plies

Indicating a Possible Trend in the Development of the Tire of the Future as Seen by a Tire Repairman

By Walter H. Campkin

THE fabric tire has largely been superseded by the cord tire, and laboratory experiments and research for the improvement of the old fabric tire probably ceased.

Close association with the tire repair and vulcanizing business brings one into direct touch with all makes of tires subjected to all conditions of service, thus enabling a sort of comparison of construction and material features emphasized by service conditions.

Practically all makes of standard tires give satisfactory service if conditions such as inflation, wheel alignment, brake adjustments, loading and driving are nearly perfect, but under adverse conditions some brands of tire will give better service than others, in other words, "are more fool proof."

Use of Clincher Tire Decreasing

The old clincher tire, now confined to small cheap cars, will eventually give way to the straight side type because the latter is more fool proof and in the aggregate enables a tremendous saving to be made in money and mileage. A very large percentage of these small fabric 30 x 3½ clincher tires become rim cut very early in life. Some are repairable but a greater percentage are cut so badly as to make repairs an unprofitable investment and they go to the scrap heap.

Underinflation in the clincher tire will ruin it quicker than will the same condition in the straight side tire. The scarcity of free air stations in the country districts removes possible reminders to the car owners to look to the air condition of his tires, and many of them have to take chances by running flat.

Cheapness is now a factor in favor of the small clincher tire. This condition, however, is not likely to last much longer, for with the increasing demand for rubber in industries outside the tire factories, together with the near settlement of international difficulties, the demand for rubber will no doubt exceed the supply and tires will be marketed for near double the present prices. When these conditions exist, the public will want the safest tire with the least investment. The demand then will naturally turn to the small straight side tire, and if Henry Ford hears this demand and continues to give Ford purchasers good value for their money he will change from clincher to straight side and the clincher will die.

Effect of Location of Flexing Line

The side flexing lines of a straight side fabric tire with a standard bead are about equidistant from tread to heel of bead. In the cord tire this flexing line is nearer to the tread line but in cord tires with light bead construction the flexing lines are brought nearer to the bead, and this feature throws close together three factors that work havoc with the tire when it is run underinflated, i.e., flexing line, bead strip and edge of rim, and this tire will go to the bad quicker under these adverse conditions than will a tire of standard bead construction, the latter being "more fool proof."

Some divergences are noticeable in the quality and weave of the materials composing the bodies of the old fabric tires, the majority of makes being built up of closely woven fabric with a loosely woven breaker strip. One make, however, followed opposite lines by using a loosely woven building fabric and a closer woven breaker strip, this latter material being something like good gunny-sack. This tire was apparently poorly cushioned or skim coated, and when torn down for repair purposes gave off an odor that gave one the impression that it was built of the cheapest material possible and naturally ought to give poor service. Repeated inquiries of the different owners of these tires as to the service they were getting elicited very favorable replies from which was revealed the fact that this tire was giving above the average service and selling for top prices.

The looseness in the weave of the fabric body of this tire was undoubtedly its service secret. It enabled a greater absorption of rubber in the frictioning operation and probably took a lighter skim coating. There was no doubt more resiliency and less danger of ply separation and these two facts were some of the reasons it gave service satisfaction. In other words, it was a step toward the qualities now so well developed in the present day cord.

Effects of Proper Impregnation

Tires built up of large cords have given way to the small cord built casings, the latter offering better rubber impregnating facilities and giving better service possibilities in cases of injury, and being in every way more resilient. So it seems that the more perfect the cords are impregnated with rubber, the more satisfactory will be the life and service of the tire. This brings us to the actual qualities of the cord as received from the mills.

Small tightly twisted cords make good fishing lines. They don't soak up the water; neither will they soak up rubber. They lose, when tightly twisted, a certain amount of the natural cotton resiliency and will hardly show any appreciable stretch. Thus, not being able to stretch much, these cords when embedded in rubber, create the exact condition that tends to separate them from the rubber.

Cotton lint, because of its cork-screw twists and hollow tubular construction possesses a natural resiliency and is the king of vegetable fibres for the purpose of tire building. Other vegetable fibres not possessing these qualifications will cut into and pull away from the rubber and so are unsuited for tire building purposes. In rubber we have these same properties emphasized to a much greater degree. Then supposing we amalgamate more of the properties of these two commodities. Wouldn't we create conditions that past experiences have pointed out as being very desirable, i.e., strength, resiliency and durability?

Loosely Twisted vs. Tightly Twisted Cords

Suppose we carry some of the rubber impregnating work to the cotton mill, and instead of tightly twisting the cords, have them loosely twisted, something like breaker fabric cords, while submerged in a bath of prepared latex. We'd get a thorough rubber impregnation probably to the lint itself. Then if some way was devised to keep these treated cords from balling up and sticking together they would produce a superior tire. We might go a step further and weave these cords into a loose net that would possess the same properties as two plies of present day superimposed cords, and two plies of this cord net when vulcanized together would present an almost plyless unit.

Even with the foregoing made possible we'd still have plies to the tire and although ply separation would be reduced to a minimum this disadvantage would still exist, and to overcome that obstacle the tire would have to be plyless by being built of a material composed of prepared latex and lint mixed up and milled into sheets to be eventually vulcanized in the tire *as a unit without plies, the super tire.*

(Since the above article was written, the author has advised us that he has seen a new cord tire that has the cord plies as a stiffening medium between plies of cushion, a departure from the cushioning-between-plies method of building; in other words, the cushion and plies have changed places.—EDITOR.)

Colors Used in Modern Rubber Plant Practice

Characteristics of Various Colors Used in the Rubber Industry and Their Method of Application

The colors that are used in rubber manufacture are numerous. They are of both organic and inorganic nature. Very often, in fact with but few exceptions, the same color that is used in the rubber batch is also employed as a paint pigment or in linoleum manufacture or for the coloring of paper, etc.

The tendency exists to use the same grade of color, perhaps in the same physical state as well, for all these purposes, but it frequently happens that the good results that are obtained with a certain color in the manufacture of paint cannot be obtained likewise in the manufacture of rubber.

There are many points to be taken into consideration, and a color of one purity, while satisfactory for one purpose, will not be satisfactory for admixture with the rubber batch.

It is for this reason that the description of the various colors that are generally used in rubber mill practice, which is given below, is of particular interest to the rubber man, combining as it does in one place valuable information that he ought to know regarding the various pigments that are used in making the rubber batch.

THE coloring of rubber is of two kinds. In the first place just the surface of the rubber is colored. In this case the coloring takes the nature of a varnishing or painting. The number of colors that can be used for coloring rubber in this manner is really very large. The second method consists in coloring the rubber in the mass. This is a much more difficult problem.

There are but a few mineral colors, and even a lesser number of organic colors, which are able to resist successfully the combined action of sulphur at a temperature of 148 degrees C, and what is more, the long heating and the action of saturated steam. There are on the whole just a few of these colors, which will be described here both in regard to their properties and to their mode of application. In this respect attention is called to the fact that most new colors, recommended for use in the rubber batch, are not given the proper experimental examination before they are put out on the market. It is by no means an easy thing to make a color that can be used with good results in the rubber mass that can stand the action of temperature and sulphur and not change in shade or composition nor give rise to products deleterious to the rubber itself.

Aureoline or Cobalt Yellow

Aureoline or cobalt yellow is the name given to the chemical compound, known as potassium cobaltinitrite. It is a yellow, microscopic crystalline powder and is obtained by the addition of a solution of potassium nitrite and acetic acid to a solution of a cobalt salt, preferably cobalt sulphate. If the price of this pigment is not too high, it should be used in coloring the rubber mass yellow whenever that effect is wanted. The pigment is fast to light, to acids, alkalies, carbon disulphide and sulphur chloride. Its pigmenting power is as great as that of the more expensive grades of chromate of lead and more so than the best grades of cadmium sulphide. Sometimes, this pigment is confused with Indian yellow, which is extracted from elephant dung and which is an entirely different substance. Aureoline does not contain the slightest trace of copper, which is a veritable poison to rubber.

Chrome Greens

Chrome green is the name applied to a number of oxides of chromium in the state of more or less hydration. These greens are used to color rubber in the batch. One of these greens is known as Guignet's green and is obtained by fusing potassium chromate and boric acid. The mass is washed, the resulting borate of chromium decomposing in water to give a hydrated oxide of chromium. This is dried and ground. This pigment is comparatively expensive, but it has absolutely no poisonous effect on the rubber and gives it a beautiful emerald color, whence it derives its name of emerald green. A substitute and cheaper green is made by treating chrome alum with carbonate of soda. This is also a very valuable pigment for coloring rubber.

There are many green coloring matters which have been put on the market and which have been recommended as suitable for coloring rubber. These are mostly aniline lakes, formed of kaolin or sulphate of barium. They are excellent as far as they go. However, the vulcanization of the mixture of rubber and coloring matter at a temperature of 148 degrees C tends to destroy most of the green color of the lakes. This does not happen when chrome greens are employed.

By means of a simple test the rubber chemist can tell for himself whether he is getting the aniline green lake or the chrome green. A small piece of the coloring matter is heated on a spoon in a Bunsen flame. The lake whitens while the oxide of chromium remains unchanged. Under similar conditions Guignet's green loses its water of crystallization. About 5 per cent of the chrome green will give a rubber mass a brilliant pistachio green shade.

Cadmium Sulphide or Cadmium Yellow

Cadmium yellow is the premier yellow coloring matter for use in the rubber batch. The only drawback encountered in its use is its high price. It is a color which is stable under all sorts of conditions. It has no harmful effect on the mechanical properties of rubber, nor has it any poisonous effects on the rubber. It comes adulterated with clay, sulphate of calcium and kaolin. Sulphide of tin is also added. All these impurities can be detected by simple rapid qualitative tests.

Chromate of Zinc

Chromate of zinc, also known as zinc yellow and buttercup yellow, is a yellow-crystalline powder which is not much used at the present time. However, it gives excellent results. It does not blacken when subjected to the vulcanization process and has no toxic effect on the rubber itself. Its coloring power is such that when used in the proportion of 5 to 10 per cent in the rubber batch, it gives a sufficient yellow coloration in the majority of cases. The disadvantage encountered in its use for this purpose, (a disadvantage which is common to all the chromates of the heavy metals), is that it promotes the aging of rubber, due no doubt to the slight oxidizing action that it has on the rubber mass. It is claimed however, that this action is less strong when pure rubber is used than when the rubber is compounded with various ingredients. If this is true, it is accordingly possible to use chromate of zinc in coloring articles made from English crepe.

In spite of certain dangerous qualities possessed by lead chromate, this pigment has been used for coloring the surface of various rubber articles. It is a dangerous procedure, for lead chromate is a bad poison. It should not be used for coloring rubber articles, especially rubber toys.

The Ultramarines

There are four different kinds of ultramarines, the blues, the violets, the greens and rose-color. In the rubber industry,

From *La Revue des Produits Chimiques*

only the first three are used, and the blues more than any of the others. The ultramarines vary considerably in composition. The best ultramarines for coloring rubber are those that contain a large percentage of silicates. Other ultramarines, such as the desulphurated ultramarines, have been recommended for this purpose, but they are not as suitable as the silicate ultramarines. These latter pigments are recognized by testing with alum.

The alum test consists of the following. A 5 per cent solution of alum is made up and the ultramarine is digested in this solution at a temperature of 50 degrees C for about six hours. The color of the ultramarine should not change if the pigment is to be suitable for use in the rubber mass. An ultramarine which survives this test, will resist the action of a solution of chloride of sulphur, even when it is used to the extent of 5 per cent per hundred parts of the solvent in the vulcanization process.

It is also a necessary condition for a good ultramarine that a fabric impregnated with a mixture containing ultramarine does not liberate free acid through the action of moisture. Otherwise the ultramarine will lose its color. There are but few substances that are so sensitive to acids, even to traces of acid, as ultramarine. The rubber maker should, therefore, take great care to see that the ultramarine is used in compounding rubber under such conditions that preclude the formation of traces of acid. The presence of acid vapors in the mixing room should be avoided.

One of the principal uses for the rubber mixture containing ultramarine is in the manufacture of the so-called rubber mosaics. These rubber mixtures are also used for making blue cloth or covers glued on to iron or wood.

Below are given two formulas for making rubber compositions used for this purpose.

Crude Borneo	2.50	Ordinary gum	2.00
Ultramarine	1.50	Crude Borneo	0.50
White oily factice	1.90	Good regenerated rubber	11.50
Ordinary gum	3.00	Sulphur	1.50
Gas black	0.50	Ultramarine	1.50
Zinc oxide	3.50	Paraffine	1.00
Sulphur	0.50	Kaolin	8.00
Kaolin	11.60		

Molybdenum Blue

Molybdenum blue is a rather expensive pigment. It colors the rubber mass a fast indigo blue, but its price limits its use. It is an oxymolybdate of tin. It is obtained by precipitating a solution of molybdate of ammonia, acidulated by hydrochloric acid, by means of tin turnings. There is also another product, known as "molybdenum carmine blue," which is obtained by the action of stannic chloride on molybdic acid.

Cobalt Blues

These blues, which are used to a considerable extent in glass making and in glazing, are used only to a slight extent by rubber makers, save for the enamelling of hard rubber articles. They have one very important disadvantage, when used in the rubber mass, for when they are ground, the powder possesses sharp cutting edges which have a bad effect on the rubber. There are various cobalt blues. Smalt is obtained by fusing cobalt oxide with sand in the reverberatory furnace. Thenard blue is an aluminate of cobalt. These blues, when used in the rubber mass, also have the disadvantage of tarnishing, due to the effect of the sulphur in the vulcanization process. On the other hand, when they are used for surface coloring of the rubber, the sulphur has no effect on them.

Iron Reds

There are many different pigments which are classified under this head, but they all have one property in common and that is that they all contain variable percentages of ferric oxide, Fe_2O_3, which is combined with an infinite variety of foreign substances. Thus there are red ochres, residues of calcination of ferric sulphates, residues recovered from the treatment of pyrites, reds of all sorts of names, depending on their geographical location and reds with fancy names which means increase in price.

It is important for the rubber manufacturer to make a careful study of these pigments so that he may select the best for his purpose. One thing does seem to be true, and that is that the natural products, in which iron seems to be combined in some peculiar manner, (probably under the influence of high temperature), do not change at the vulcanizing temperature. The iron does not combine with sulphur to give a black sulphide of iron as is the case when some artificial red pigments are used.

The Blacks

Quite a variety of black pigments are used in rubber making, both in the manufacture of hard and soft rubber articles. These black pigments are lampblack, gasblack or natural gas black, bone-black or ivory black, petroleum black, stearate black, uranium black and black oxide of iron.

Lampblack, which is the condensed smoke obtained by burning organic matter in insufficient air, is of various grades according to the nature of the organic matter burnt. It can be made from pine resin, various tars, resinous woods and organic refuse of the most diversified nature.

Natural gas black is a very fine product and is made by the incomplete combustion of natural gas. Acetylene black is made from acetylene. These blacks possess the distinct advantage over lampblack of containing no greasy or empyreumatic substances. A very simple test will detect the presence of these substances. A mash of the black with a pure solvent (gasoline or benzene or pure petroleum ether) is spread out over a piece of dry paper, which has preferably been sulphurized. If the black is free from empyreumatic substances of undesirable qualities, a yellowish ring will be produced at the edges. Rubber makers, who purchase this black, are advised to make this simple test to determine whether they are really getting what they pay for.

Another black, which is used by rubber manufacturers, is bone-black or ivory black. This is obtained by the calcination of bones which have been extracted with solvents in order to remove the fatty matters. The calcination takes place in the absence of air. This black contains about 80 per cent of phosphate of lime, 6 to 10 per cent of carbonate of lime and scarcely 10 per cent of the black itself. For this reason it can hardly be called a pigment for its covering power is very small. But it has some value to the rubber man, because it possesses the power to absorb the bad odors of certain kinds of rubber. Its value as a pigment to the rubber maker is however negligible.

The blacks that are produced by the incomplete combustion of crude or semi-refined petroleum, tars obtained from the sulphuric acid used in the purification of petroleum, petroleum pitch and stearine pitch, are of fine quality and are particularly well-suited for the manufacture of rubber. In fact they give ebonite of the best grade. These blacks are of intense color, extremely finely divided and have a velvety smoothness. The best way of using this black and others that come in the form of impalpable powders, is to mix them with a solvent, such as benzol, producing a pasty mass which is immediately introduced into the rubber compound. In this manner dusting is avoided, which is very disagreeable to the workers. The solvent is evaporated during the mixing of the rubber compound.

Uranium black is a good pigment for coloring the rubber mass. It is a sulphide of uranium, and it is not affected in any way by the sulphur that is added to the rubber batch. Its use is limited only by its price.

Another black, which is of considerable interest, is the oxide of iron black, also known by the name of Mapico pigment. This black is made by chemical methods from solutions of iron salts. The pigment is very pure and is free from acidity. The composition of the pigment is also very constant.

Direct Imports of Tires Aids Agents in Para

Agents who buy and receive their stock direct from the manufacturer are quoting lower prices than agents who receive stock from tire distributors located in Rio de Janeiro. The possession of a distributing station in Rio de Janeiro has, for the manufacturer, many things in its favor but the local dealer who receives his stock direct has a very great advantage in the matter of cost and overhead that will permit him to undersell his competitor. The existing local stock of tires is very incomplete, dealers being out of sizes and unable to say when they will obtain new supplies. The Michelin tire continues to be the favorite and secures about ninety per cent of the sales.

'Ever See a Whole Menagerie Built of Rubber-Balloons?

Scenes showing the large variety of rubber articles in the form of animals which are attracting a great deal of attention in the windows of "Rubberland," a large rubber store in Cincinnati, Ohio

By Felix J. Koch

Curious ?

Of course it's curious !

It's curious as the animals stand about, some of them facing this way and some of them that,—some of them thin and haggard-looking, thanks to someone not blowing them up enough,—and some of them so sleek and fat it would seem that they must burst because given really a very considerable surplusage of air.

It's more curious still when a breeze happens to blow through the open window near, and sets the monkey's tail to wagging, and the elephant's trunk to bobbing, and the giraffe's neck to swaying up and down.

It's most curious of all though, when the big electric-fan in the corner is set revolving and its big, powerful draught sends every animal, big and little, flying helter-skelter before it as the animals must have fled to the good shelter of the Ark when the Great Deluge came.

As a consequence, kiddies are fairly wild over the new Noah's arks with the animals all of balloon form.

As a matter of fact, these brightly-hued, very life-like animals are not gas-balloons, but just the rubber-balloon with the wee pipe-stem that any one can blow up and that remind one of the rubber balloons you and I bought in the penny stores back in childhood. Only, they are shaped to lions and tigers, leopards and jaguars, elephants, giraffes, zebras, gorillas and lesser apes, and almost every other animal the best equipped Noah's ark of other sorts might have contained.

The toys are done in colors in no wise harmful to wee folk, and, sold at a price quite within the reach of everyone, they go to constitute,—each alone, or in sets of six, a dozen, or an entire ark-load of them, as novel, attractive and, in fact, all-around satisfactory a gift for the very litle folk as the most ardent and pains-taking of Anglo-Saxon child lovers can make. (*"Rubberland,"* **Cincinnati, O.**)

A Letter From Frederick Kaye

IN a recent letter to the Editor of THE RUBBER AGE, Frederick Kaye, Technical Director of Kaye's Rubber Latex Process, Ltd., London, states that he was interested in our article in the January 10th. issue on, "Latex—The New Face at the Door" but that we failed to give complete information on the progress of the application of rubber latex to paper making in Great Britain and the Continent.

This additional information on this subject is taken from Mr. Kaye's letter:

"My process is being applied on a commercial scale in a good many of the finest mills in England and Scotland where the highest grades of writing and printing papers are being produced. Every week new ranges of commercial experiments are being taken up and more mills are applying for licences. For example one mill has just reported making 20 tons of Latex Paper in a week.

"There appears to be an interesting field opening out in the production of Art paper, where Latex gives a wonderful texture and surface for high class printing and lithographic work without the excessive mineral leading of the coating.

"Already a newspaper has been printed on Latex Paper and many developments are pending as to the production of considerable supplies of printing paper for newspapers at home and abroad. Many wholesale paper merchants, Paper Mill Agents, Printers, Paper Exporters, etc. have issued or are issuing sample books of Latex paper, so that the industrial and commercial propaganda offered by the quality of the paper is pushing Latex Paper into rapidly extended use especially in the large business houses of the city.

"Every important paper making Country in Europe is eagerly taking an active part in commercial experiments on many grades of paper. The paper mills of Norway, Sweden, Finland, Denmark, Holland, Belgium, France, Spain, Austria, Switzerland, Germany, etc. have imported very considerable amounts of rubber latex for paper making.

"The Scandinavian paper makers especially are making splendid progress and are reaching results which will have a far-reaching effect.

"I regret that all reports of experiments from the United States of American are not satisfactory but I know some excellent results have been achieved in some of the mills in your country. I am afraid there is rather a tendency to over emphasize the unsuccessful mills while the successful mills work on a quieter note. The same happens here to some extent, the successful mills say little but produce the goods and win the market.

"The possibilities of the application of Rubber Latex to paper making processes are virtually unlimited and the interest in my invention is a living and active spirit of a creative and growing nature.

"Every day new ideas and suggestions for the use of Latex Paper come into being from ourselves or from the industry or the outside."

R.G.A. Committee Report

Summary of Statistical Information Included in Report Made by British R.G.A. Committee to its Council

IN our last issue there was given a summary of the report made by the delegates of the British Rubber Growers' Association to its council as cabled to this country by H. Stuart Hotchkiss. (THE RUBBER AGE, March 10, page 411). In the report as submitted much more material was included than was given in the above summary. The report included the itinerary of the committee as well as facts on general results expected, planting costs and various statistical information and notes on packing and quality of plantation rubber.

This information was contained in a number of appendices. The more important of these are presented here as reported in the *India Rubber Journal* of March 3, 1923.

Reclaimed Rubber—Appendix B2

The absorption of reclaimed rubber in U.S.A. expressed as a percentage of the crude rubber absorbed has been appproximately as follows:—

Year 1919	36	per cent.
" 1920	40	" "
" 1921	25	" "
" 1922	19	" "

During 1921 and 1922 crude rubber was substituted for reclaimed in many lines of manufacture, but reclaimed is already being used in increasing quantities again, and it would appear from the information received that when crude rubber is over 20 cents per lb.—say 10½d.—reclaimed will hold its own for the purposes for which it is suitable.

Estimates of Output (Export) and Absorption of Crude Rubber in 1923—Appendix B3

Output.—The Delegates furnished the following estimate:—

1923 Output of Plantation Rubber (from unrestricted areas (80,000 tons), Wild Rubber (20,000 tons)	100,000 tons.
Approximate Standard Production of the Plantation Areas on which there is either compulsory or voluntary restriction of exports—350,000 tons. Sixty per cent of this is 210,000 tons	210,000 tons.
Making output (export) of Crude Rubber in 1923 at least	310,000 tons.

Note:—Since these figures were submitted the official figures of standard production in British Malaya have been published (270,000 tons), from which it is clear that the foregoing figures of 350,000 tons is a conservative one.

No change can be made in the percentage exportable at the minimum rate of duty until 1st May, 1923, but provided the average price of standard quality smoked sheet is maintained at not less than 1s. 6d. per lb., London landed terms, during the three months, February, March, April, 1923, and during the remaining quarters of the year, the following rubber would be available for absorption in addition to existing surplus stocks:—

January-April, 1923	103,000 tons.
May-July, 1923	86,000 "
August-October, 1923	95,000 "
November-December, 1923	69,000 "
Total	353,000

On this basis output (export) at the end of 1923 would be running at the rate of 420,000 tons per annum, 90 per cent of standard being then exportable at the minimum rate of duty.

The visible supply of crude rubber in the United Kingdom at 1st January, 1923, was 81,000 tons, and it is a reasonable assumption that 50,000 tons of that stock are available for consumption without impeding the working of the market.

Stocks in the U.S.A. appear to be fully up to normal.

Absorption.—Basing their calculations on the 1922 figures and assuming substantial expansion of trade, the R.A.A. Committee furnished the following estimate of absorption of crude rubber in 1923:—

U. S. A.	315,000 tons.
Rest of the world	110,000 "
Total	425,000 "

The Delegates expressed their opinion that this estimate was too high, particularly in view of the greater use of reclaimed rubber at the higher price levels, and that it would be safer to assume that the world might absorb 400,000 tons of crude rubber during 1922. It appeared to them that adequate supplies will be available for the needs of the industry if the average price of standard quality smoked sheet is maintained at 1s. 6d. per lb., London landed terms.

Packing and Quality of Plantation Rubber—Appendix C

Particular attention was directed to ascertaining the views of the U. S. manufacturers on the quality of the plantation grades used by them, and direct questions were put to them as to any defects noticed. A few manufacturers found no fault, but generally the complaints were of two kinds:—

1. That wood splinters, foreign bodies and coarse impurities were surfaced over the rubber when unpacked and also found between the individual sheets of rubber when pulled apart.
2. That the rate of cure of similar grades of rubber varied considerably, even in rubber from apparently the same batches.

The inclusion of splinters and foreign bodies in the chests of rubber was amply demonstrated to us in the stock-rooms of individual factories, and on this point there can be no doubt at all that there is cause for serious complaint.

The cause of the trouble is believed to be due to:—

(a) The use of wooden cases with rough internal surfaces and of cases which are too fragile to stand rough treatment in transit;

(b) The careless handling of the chests and rubber during sampling and re-coopering. In one instance coffee beans were seen mixed with the rubber. These had probably been picked up during transit or in re-coopering, the chest being from a district where coffee is not grown.

(c) The method of opening the cases in the factory. This usually consists of cutting the case in half with a heavy axe, with consequent formation of splinters, which are liable to immediately become mixed up with the rubber contents.

The rubber itself showed that a very high standard of careful preparation had been attained in the plantation factories, and it is felt that further efforts should be made to avoid this subsequent contamination.

Inquiries indicate that approximately one-third of this first-quality rubber used for tire purposes has to be re-washed, and that nearly the whole requires cleaning up or brushing over before use. This involves a waste of labor which should be avoided.

Various methods of attacking this problem have been discussed, and the suggestion which the deputation considers most promising is to wrap the fine rubber contents of each case in a wrapper of plain rubber sheer similar to smoked sheet, but of such suitable size that complete protection will be accorded to the rubber inside.

Strips of ordinary crepe and smoked sheet have been used for this purpose, but fail to give complete protection, being too narrow and leaving edges and corners open. Crepe, moreover, is essentially unsuitable for a dust and dirt excluding material.

It may be necessary to prepare sheets of suitable size in special large flat coagulating pans, or a more simple process might be to build up a wide sheet from several strips of dry

plain rolled sheet, by hand pressing their edges together, using a little benzine or rubber solution to obtain adhesion, if simple pressure proves inadequate.

This wrapper must be easily removable, and should be treated in some way to prevent adhesion to the fine rubber enclosed by it. This can be done by lightly dusting it over with French chalk or by brushing its surface over with a one per cent solution of bromine in water, which renders it non-adhesive.

Turning to the other difficulty of variation in the rate of cure, the opinion is held that no complete solution of the problem is at present possible. It is known that there are many factors in determining the rate of cure of the final dry rubber, and it is within the power of any estate to produce a slow-curing or quick-curing rubber by variation of the estate procedure of coagulation, milling and drying. It is considered that the better policy at the present time is for each estate to concentrate upon day-to-day and week-to-week uniformity of product by a rigid adherence to a daily routine, allowing no variations in the concentration of coagulants or thickness of sheets, maintaining a uniform period between coagu'ation and milling, preserving uniform conditions in smoking and drying, and having once set up a working schedule of factory procedure to rigidly adhere to it.

Uniform Chemical Nomenclature

The American Chemical Society has recently been working toward the establishment of standard nomenclature rules and in conjunction with the London Chemical Society, the rules given below have been approved and adopted by the Society. These rules do not cover the field completely but they cover general points on which usage has differed considerably.

Nomenclature Rules Adopted by the Nomenclature Committee of the American Chemical Society and that of the London Chemical Society

1. In naming a compound so as to indicate that oxygen is replaced by sulphur the prefix *thio* and not *sulfo* should be used (sulfo denotes the group SO_3H); thus, HCNS, *thio*cyanic acid; H_3AsS_4, *thio*arsenic acid; $Na_2S_2O_3$, sodium *thio*sulphate; $CS(NH_2)_2$, *thio*urea. The only use of *thio* as a name for sulphur replacing hydrogen is in cases in which the sulphur serves as a link in compounds not suitably named as mercapto derivatives; thus $H_2NC_6H_4SC_6H_4NH_2$, thiobisaniline. *Hyposulphurous acid*, not hydrosulphurous acid, should be used to designate $H_2S_2O_4$.

2. The word *hydroxide* should be used for a compound with OH and *hydrate* for a compound with H_2O. Thus, barium hydroxide, $Ba(OH)_2$; chlorine hydrate, Cl_210H_2O.

3. Salts of chloroplatinic acid are *chloroplatinates* (not platinichlorides). Similarly salts of chloroauric acid are to be called *chloroaurates*.

4. Hydroxyl derivatives of hydrocarbons are to be given names ending in *—ol*, as glyce*rol*, resorcin*ol*, pinac*ol* (not pinacone), mannit*ol* (not mannite), pyrocatech*ol* (not pyrocatechin).

5. The names of the groups NH_2, NHR, NR_2, NH or NR should end in *—ido* only when they are substituents in an acid group, otherwise in *—ino*; thus, MeC(:NH)OEt, ethyl im*ido*acetate; $NH_2CH_2CH_2CO_2H$, β-am*ino*propionic acid (not am*ido*propionic acid); $NHPhCH_2CH_2CO_2H$, β-anil*ino*propionic acid; $CH_3C(:NH)CO_2H$, α-iminopropionic acid.

6. Hydroxy—, not oxy—, should be used in designating the hydroxyl group; as *hydroxy*acetic acid, $CH_2(OH)CO_2H$, not *oxy*acetic acid. *Keto*— is to be preferred to *oxy*— to designate oxygen in the group—CO—.

7. The term *ether* is to be used in the usual modern acceptation only and not as an equivalent of *ester*.

8. Salts of organic bases with hydrochloric acid should be called *hydrochlorides* (not hydrochlorates nor chlorhydrates). Similarly hydrobromide and hydriodide should be used.

9. German names ending in *—it* should be translated *—ite* rather than *—it*; as permut*ite*. If it seems desirable to retain the original form of a trade name it should be placed in quotations, as "Permutit." Alcohols such as dulcitol (German Dulcit) are exceptions.

10. German names of acids should generally be translated by substituting *—ic acid* for "—säure." Some well established names are exceptions, as Zuckersäure (saccharic acid) Milchsäure (lactic acid), Valeriansäure (valeric acid), etc. When the names end in "—insäure" the translator *may* substitute *—ic acid* unless another acid already bears the resulting name; thus, Acridinsäure, acridic acid, but Mekoninsäure, meconinic acid, because meconic acid (Mekonsäure) is different. Names ending in "carbonsäure' are to be translated —carboxylic acid (not —carbonic acid).

Peru Interested in Rubber

In a forthcoming issue of THE RUBBER AGE, there will appear a comprehensive article on Peru as a rubber producing country. This article will contain valuable information on the resources of Peru, land concessions, tax laws, labor and climatic conditions, etc., fully illustrated with photographs and maps. In the meantime the following extracts from a letter sent to the Editor by Edwardo Higginson, Consul General in the U. S., will be of value for an indication is given of the interest taken by President Leguia in the subject of finding new rubber producing areas.

Mr. Higginson writes, in part, as follows: "Concerning the article on the rubber producing possibilities of Peru, I am awaiting certain recent publications and maps from Peru, which, when received, will enable me to send you a synopsis of the present conditions and other factors affecting the industry.

"In the meantime I take advantage of this opportunity to inform you that the recent discussions attributed by the American press to the leading rubber manufacturers in this country, relative to the necessity of their finding new sources of supply of the raw material through the development of the new rubber producing areas, have received considerable attention on the part of the President of Peru and the Government.

"President Leguia has cabled me that he is particularly interested in the project and states that he offers every assurance that the Peruvian Government will grant facilities for the study of the Peruvian rubber producing areas and the possibility of their cultivation and development as new sources of supply. You are probably aware that there are vast areas of land in the eastern part of Peru, the so-called Amazon region which are exceedingly favorable for the cultivation of rubber. In fact, this region at one time, prior to the development of the plantations in the east, produced the world's entire supply of rubber. Competition from the plantations was not due to any superiority in quality of the rubber but rather to the transportation facilities.

"I have every reason to believe, and my belief is confirmed by President Leguia, that the Government will extend it's full co-operation to any organization which may be contemplating the exploitation of new rubber lands. Tentatively I would say that this would be in the nature of special land concessions, appropriate tax laws, and sufficient guarantees to insure the rights of a company. In my opinion the proposal merits the deep consideration of those concerned. There would be no experimentation in an unproved field, but rather a study of the conditions existing in a producing field, and the adaptation of those conditions to present requirements."

American Tires Popular in South Africa

The outlook for the sale of American tires in Johannesburg is good, owing to the preponderance of cars of American manufacture on the South African market. At present Dunlop gets about 20 per cent of the tire business and Michelin 18 per cent, the share of the three leading American makes being about 35 per cent. The trade discount accorded is 25 per cent and 5 per cent. Discounts by retailers are made only to firms listed as commercial users by the Motor Traders Association, Consul G. K. Donald, Johannesburg, reports to the Department of Commerce.

Vulcanizer Supports Higher Prices

The Editor of THE RUBBER AGE has received an interesting letter from W. H. Campkin, a vulcanizer of Laurel, Miss., in which he expresses his views on the higher prices of crude rubber under the Stevenson Plan. His letter follows:

"The statement of Mr. Harvey Firestone as contained in the Jan. 10th issue of THE RUBBER AGE that "The restriction and export duty laws passed by the British Colonial Governments will cost rubber users in this country $100,000,000 in 1923" also that "This uncalled for legislation should be modified in a drastic manner or rescinded entirely" is very good news to the tire repair industry.

"This latter branch of the rubber industry has been suffering because the prevailing extreme low prices of new casings does not recommend to the consumer the necessity of having his damaged tires repaired. He can afford to take chances with them, boot them up, or discard them and buy new casings.

"The prospects of higher tire prices will bring work to the vulcanizer, will put scrap rubber back on the market and will promote a healthy reaction all down the line from the plantation to the consumer, the latter giving more attention to his tires and realizing something for them when discarded.

"The American automobile public will pay the $100,000,000 extra payment without causing the tire factories any loss of business, and may prove beneficial to the export departments by enabling foreign buyers to come into the market again for tires, especially in the plantation territories.

"We've got to have rubber and the British control about 80 per cent of its production and America uses about 70 per cent of the total amount produced. We can raise rubber in the Philippines providing the high prices we are going to pay in the future matures, for these prices will be the incentive that will spur us to get some control on the supply sources.

"The American consumer pays more for his commodities and receives more remuneration for his services than does his foreign brother. He also lives better and spends more money on luxuries when conditions are normal, and the tire repair end of the rubber industry is about to share in the coming prosperous times that are on their way to normality."

Amalgamation of Japanese Rubber Companies

Owing to the depression in the rubber plantations, the Nettai Sangyo Kaisha, the Malay Rubber Co., the South Seas Rubber Co., the China-Japan Rubber Co., the Johol Rubber Co., and the Sumatra Rubber Plantation Co. have presented an appeal to the Government for help. A similar appeal has been made to the Government by the Japanese companies in the neighborhood of Singapore. The Government took the view that the relief of the rubber industry is impossible, and advised them to amalgamate or form a syndicate. Representatives of the Sumatra Rubber Plantation Co., the Sumatra-Koygo Co., the Nanyo Rubber Co., and the Borneo Rubber Co. met at Nanyo Kyokai, Tokyo, on September 28 to discuss the question of amalgamation. It was decided to consider the question of dividing all the rubber-growing companies into three groups, namely, the companies along the Johol River, those along the Maley Railway Line, and those in Sumatra. The rubber-growing companies along the Johol River and the Maley Railway are also to hold meetings shortly.

Rubber Plantations in British North Borneo

The area under rubber cultivation in British North Borneo at the end of 1921 was 58,300 acres. The area being tapped was 24,526 acres. Rubber exports for the year 1921 were 6,990,626 pounds compared with 9,223,246 pounds in 1920, 8,823,422 in 1919, and 5,808,870 in 1918. Practically all companies restricted output 25 per cent in accordance with the scheme of the Rubber Growers' Association.

Crude Rubber Import Statistics

Importations of Crude Rubber into the United States During February, 1923

(Estimated net weights—long tons.)

PLANTATIONS

FROM	TONS
Batavia	997
Belawan-Deli	1,514
Colombo	2,122
Hamburg	499
Japan and Others	471
London	1,535
Malacca	657
Penang	2,612
Port Dickson	309
Pt. Swettenham	1,629
Rotterdam	350
Singapore	8,708
Sourabaya	412
	21,815

AFRICANS

FROM	TONS
Antwerp	22
Hamburg	39
Liverpool	226
Lisbon	4
Marseilles	1
Rotterdam	16
	308

CENTRALS AND GUAYULE

Centrals (Mexico and Central America)	93
Guayule (Mexico)	
	93

PARAS

Bahia	16
Iquitos	65
Manoas	835
Para	1,088
	2,004

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

	Tons
Waste	684
Balata	25
Miscellaneous Gums	397
Total Importations	2

Comparison 1922—1923

	FEB.-1922	FEB.-1923	months ending, FEB. 28th. 1922	1923
Plantations	27,270	21,815	48,044	51,169
Paras	1,347	2,004	2,263	3,237
Africans	301	308	462	857
Central	14	93	30	154
Guayule	—	—	—	—
Manicoba and) Matto Grosso)	41	—	41	—
	28,973	24,220	50,840	55,417

ARRIVALS PLANTATIONS FOR FEBRUARY, 1923, SHOWING PORTS OF ORIGIN AND ARRIVAL

FROM	ARRIVED AT	TONS
Batavia	New York	997
Belawan-Deli	Boston	16
Belawan-Deli	New York	1,498
Colombo	Boston	89
Colombo	New York	2,033
Hamburg	New York	499
Japan and Others	New York	358
Japan and Others	Seattle	113
London	Boston	25
London	New York	1,510
Malacca	Boston	71
Malacca	New York	568
Malacca	San Francisco	18
Penang	Boston	68
Penang	New York	2,500
Penang	San Francisco	44
Port Dickson	New York	309
Port Swettenham	Boston	23
Port Swettenham	New York	1,606
Rotterdam	Boston	85
Rotterdam	New York	265
Singapore	Boston	666
Singapore	New York	7,956
Singapore	San Francisco	54
Singapore	Vancouver	32
Sourabaya	New York	412
		21,815

ARRIVALS OF PLANTATIONS BY PORTS

Atlantic Ports		
New York	20,511	
Boston	1,043	
		21,554
Pacific Ports		
Seattle	113	
San Francisco	116	
Vancouver	32	
		261
		21,815

MARKETS

Cottons and Fabrics

NEW YORK, MARCH 17, 1923

COTTON sold above 31¼ cents on March 8 as a direct result of a report indicating record cotton consumption for February. In that month the consumption was 566, 924 bales, exclusive of linters, making a total for the seven months of the cotton year of 3,839,-503 bales; which is 355,610 bales more than for the similar period last year. The February figure sets a new high record for all time in consumption for that month.

The figures on active spindles were also very impressive, showing 35,307,-707 compared with 35,240,583 in January this year and 33,755,359 in February last year. Cotton on hand in public storage and at compressors on February 28 this year amounted to 2,-804,904 bales as against 3,481,689 bales on hand January 31 this year and 4,-214, 862 on hand February 28 last year. Cotton in consuming establishments totaled 2,021,903 bales compared with 1,986,605 on hand January 31 this year and 1,595,242 bales on hand February 28 last year.

Under the spur of 31 cent cotton it is expected that the South will devote all the acreage possible to the cultivation of the staple. When cotton crossed 31 cents a pound it reached the highest price since 1920 and the highest price recorded with the exception of the period from 1917 to 1920. Just previous to the war the price was 13 cents a pound. With consumption at its present high rate an unusually large crop will be necessary this year if there is to be any surplus after the demand is satisfied. It will be several weeks before the acreage of the new crop is known.

Prices on the New York Cotton Exchange advanced from $1.00 to $2.00 a bale on the last day of the period under review and again crossed 31 cents a pound. Quotations as of March 17 follow:

	Open.	High.	Low.	Close.	Prev. day.
March	.....	31.11	30.80	31.11	30.87
May	.....30.85	31.31	30.85	31.25@31.28	31.02
July	....30.15	30.45	30.14	30.42@30.45	30.27
Oct.	.....26.70	26.96	26.68	26.85@26.91	26.74
Dec.	....26.15	26.42	26.15	26.38@26.40	26.13
Jan.	....25.88	26.12	26.86	26.05@26.10	25.81

EXTRA STAPLE COTTON

There was only slight activity in the market and all through the period the asking prices were put beyond the point of attraction for the mills. Extra Staple cotton did not advance in proportion to short cotton and the margin of difference in price grew less until the anomolous condition prevailed of some short cotton selling higher than certain staples.

Reliable reports indicate that the Egyptian available supply is larger than at first reported. The carry over will amount to 500,000 cantars and this added to the entire new crop will put supplies at 6,000,000 cantars. Medium uppers on spot were offered at 34 cents and medium grade Sak ranged from 36 to 38 cents with finest grades 39 cents and up. The market was quiet with less pressure the last few days than in the early part of the month.

There was a good demand for Pima cotton in all the markets and the advance in tire prices was the cause of the activity. Number ones advanced to 39 cents and Number twos could be had at 38 cents, and number threes, 36½ to 37 cents. Supplies are not plentiful. A report was issued that 32,081 bales of Pima cotton were ginned in the Salt River Valley up to March 1; the equivalent of 33,199 bales weighing 500 pounds each. A sale of 1,150 bales was made to the Southwest Cotton Co., a subsidiary of the Goodyear Tire and Rubber Company. It was said that 1000 bales of No. 1s brought 38½ cents and 150 bales of No. 2s 37½ cents.

Peruvians were in slight demand in small lots. Medium grade mitafifi was sold as low as 33 cents and fairly high grade brought 36 cents. Strict middling Tangris was sold at 34 cents during the period.

Quotations on Extra Staple cotton, classed on a high and exacting standard as to staple are as follows.

1 1/8	inch, 34	to 35	cents.
1 3/16	inch, 34	to 36	cents.
1 1/4	inch, 37	to 38	cents.
1 5/16	inch, 40	to 42	cents.

TIRE FABRICS

The price situation continues unchanged although cotton has advanced about a cent and a half since the last period. Transactions were for small lots and there seems to be no inclination on the part of manufacturers to make commitments on fabric for the fall trade. The tendency has been to wait until a better idea could be formed regarding the ability of the trade to absorb production of tires at its present high rate and also to get a better gauge on the cotton situation.

Cotton has come to be of first importance in the rubber industry. Over 200,000,000 pounds of the staple will be used this year in the industry and represents the most expensive single item in the manufacture of tires. The quantity of some staples suitable for the tire industry is becoming less and the demand increasing. There was a time when Sea Island cotton was the only cotton used in standard tire fabrics but this has practically passed away as far as the tire industry is concerned.

CORD FABRICS			
Combed Sakellarides	.80	@	.85
Combed Peeler .....lb.	.75	@	.80
Carded Peeler .....lb.	.66	@	.70
Combed Egyptian uppers ....lb.	.73	@	.78
Carded Egyptian uppers ....lb.	.68½	@	.72

SQUARE WOVEN			
17¼-ounce Egyptian uppers, combed .....lb.	.70	@	.75
17¼-ounce Egyptian uppers, carded .....lb.	.65½	@	.68
17¼-ounce Sakellarides, combed .....lb.	.77	@	.82
17¼-ounce Peeler, combed ..lb.	.73	@	.78
17¼-ounce Peeler, carded ..lb.	.61½	@	.67

SHEETINGS—There was a small advance in most of the 40 inch items. 2.85 yard were contracted for at 17½ cents net; 4.25 yard at 12 to 12¼ cents net depending upon make and delivery and 3.60 yard at 14¾ cents.

DUCKS—The sold up condition of some mills made it impossible to take on new business for near by months. A new set of standard specifications has been tentatively approved by the Hose & Belting Duck Committees of the American Society for Testing Materials and will be submitted at the society's regular annual meeting to be held at Atlantic City in June.

BURLAPS—Burlap shipments from Calcutta to this country last month showed a sharp decline from the January total. The total was 58,000,000 yards of which 11,000,000 were consigned to Pacific Coast ports. January exports to the United States reached 97,000,000 yards.

SHEETINGS			
40-inch 2.50-yard .....yd.	.20	@	.20¼
40-inch 2.85-yard .....yd.	.17¼	@	.17½
40-inch 3.15-yard .....yd.	.16¾	@	—
40-inch 3.60-yard .....yd.	.14¾	@	.15
40-inch 3.75-yard .....yd.	.13½	@	.14
40-inch 4.25-yard .....yd.	.12	@	.12¼

DUCKS			
Belting .....lb.	.48	@	.49
Hose .....lb.	.48	@	.49
Enameling .....lb.	.53	@	.58
Shoe Ducks .....lb.	.55	@	.58
Single filling .....lb.	.23½	@	.25
Double filling .....lb.	.25	@	.27

BURLAPS (Carload Lots)			
7½-ounce 40-inch	7.40	@	7.45
8 -ounce 40-inch	7.50	@	7.55
10 -ounce 40-inch	8.90	@	8.95
10½-ounce 40-inch	8.95	@	9.00

DRILLS			
37-inch 3.25-yard .....yd.	.15¼	@	—
37-inch 2.75-yard .....yd.	.17¼	@	—
37-inch 3.00-yard .....yd.	.16¼	@	—
37-inch 3.50-yard .....yd.	.14¾	@	—
37-inch 3.95-yard .....yd.	.13¼	@	—

OSNABURGS			
30-inch 7-ounce	.19	@	—
40-inch 7-ounce	.20	@	—

Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, March 17, 1923—Continued activity in the tire business and in many other branches of the rubber industry brought about increased activity in the industrial chemical markets the two weeks just past. Inquiries came into all departments of the market and strengthened prices of most items. Substantial advances were made in materials where the high cost of raw products had increased the cost of production but a general demand was the principal cause of the change in the tone of the market. There was a stronger tone throughout than had prevailed for some weeks and many advanced price changes were recorded. The trend of the market is toward more active business in the movement of goods and for firmer prices.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .93	@ —
Aniline oil, drums	lb.	.16½	@ .17
Diphenylguanidine	lb.	1.25	@ —
Excellerex,	ton	17.00	@ —
Formaldehyde-Aniline	lb.	.51½	@ —
Hexamethylene-tetramine	lb.	.95	@ .97
Paraphenylenediamine	lb.	1.50	@ 1.55
Thiocarbanilide, kegs	lb.	.28	@ .35
Vulcocene	lb.	.35	@ —

Inorganic

Lead, sublimed blue	lb.	.09	@ —
Lead, white	lb.	.09	@ —
Litharge, domestic	lb.	10.90	@ 12.07
imported	lb.	.17	@ —
Lime, Superfine	lb.	.02	@ .02½
Magnesia, calcined, light,	lb.	.23	@ .24
extra light	lb.	.45	@ —
heavy	lb.	.05	@ .06
Orange Mineral	lb.	14.15	@ 15.25

COLORS

Blacks

Carbon Black	lb.	.19	@ .25
Micronex	lb.	—	@ —
Lamp Black	lb.	.12	@ .40
Bone "	lb.	.05½	@ .07½
Drop "	lb.	.07½	@ .16
Ivory "	lb.	.15	@ .45

Blues

Prussian	lb.	.55	@ .60
Ultramarine	lb.	.10	@ .35
Cobalt	lb.	.21	@ .26

Browns

Iron oxide	lb.	.03¾	@ .06
Sienna, Italian,	lb.	.06	@ .08¾
Umber, Turkey,	lb.	.04	@ .04
Vandyke, domestic	lb.	.03½	@ .04½

Greens

Chrome, light	lb.	.32	@ .34
medium	lb.	.35	@ .36
dark	lb.	.36	@ .45
commercial	lb.	.12	@ —

Reds

Antimony, crimson	lb.	.34	@ .50
golden	lb.	.18	@ .35
red sulphuret	lb.	.20	@ .22
Indian, English,	lb.	.12	@ .15
Para toner	cwt.	1.00	@ 1.10
Toluidine toner	lb.	2.10	@ 2.25
Venetian red	lb.	.03½	@ .06
Vermillion, quicksilver, English	lb.	1.30	@ —
domestic	lb.	.25	@ .30

Whites

Albalith	lb.	.06½	@ .07
Aluminum bronze	lb.	.55	@ .60
Azolith	lb.	.06½	@ .07
Lithopone, domestic (factory)	lb.	.06½	@ .07
Zinc Oxide—American Process			
American Horse Head Special	lb.	.08	@ .08½
XX red	lb.	.07½	@ .08
American Azo: ZZZ (lead free)	lb.	.07½	@ .08
ZZ (under 5 per cent leaded)	lb.	.06¾	@ .07¼
Z (8-10 per cent leaded)	lb.	.06½	@ .06¾
Zinc Oxide—French Process			
White seal	lb.	.11½	@ .11¾
Green seal	lb.	.10¼	@ .10¾
Red seal	lb.	.09¼	@ .09¾

Yellows

Chrome, light		.18	@ .19
dark and medium	lb.	.18	@ .19
Cadmium Sulphide	lb.	1.50	@ 1.75
Ocher, French	lb.	.02¾	@ .03½
domestic	lb.	.02½	@ .03

COMPOUNDING INGREDIENTS

Aluminum flake	ton	25.00	@ 30.00
hydrate	lb.	.18	@ .20
Ammonia carbonate,	lb.	.07¾	@ .10½
Barium carbonate	ton	.67	@ .70
Barium Dust	lb.	.05	@ —
Barytes southern off-color,	ton	15.00	@ 20.00
Western, prime white	ton	26.00	@ —
Basofor	lb.	.04¾	@ —
Western, prime white,	ton	26.00	@ —
Blanc fixe, dry f.o.b. works	lb.	.04¼	@ .04½
Carrara filler	lb.	.01½	@ .02
Chalk, precipitated, extra light	lb.	.03	@ .03¾
heavy	lb.	.02½	@ .03¼
Clay, China, domestic,	ton	15.00	@ 16.50
imported	ton	16.25	@ 23.25
Dixie	ton	22.00	@ 32.00
Blue Ridge	ton	20.00	@ 30.00
Fossil flour	ton	60.00	@ —
Glues, extra white	lb.	.30	@ .40
medium white	lb.	.20	@ .26
cabinet	lb.	.18	@ .30
cabinet low grade	lb.	.16	@ .19
common bone	lb.	.08½	@ .14
Graphite flake, bbls.	lb.	.06½	@ .10
amorphous		.05	@ —
Infusorial earth, powdered	ton	65.00	@ —
bolted	ton	65.00	@ —
Liquid latex	gal.	1.30	@ —
Mica, powdered	lb.	.15	@ —
Rotton Stone (powdered)	lb.	.02½	@ .04½
Silica (gold bond)	ton	31.00	@ —
Soapstone, powdered	ton	12.00	@ 15.00
Starch, powdered	cwt.	2.80	@ 2.90
Talc, domestic	ton	15.00	@ 18.00
French	ton	20.00	@ —
French, high grade	ton	40.00	@ —
Italian	ton	47.00	@ 58.00
Terra Alba	cwt.	1.85	@ 2.00
Tripoli, white	lb.	.02	@ .02½
Whiting, commercial	cwt.	1.00	@ 1.25
Quaker	ton	13.00	@ 15.00
English, cliffstone	cwt.	1.50	@ 2.00
gilder's bolted	cwt.	1.10	@ 1.25
Paris white American	cwt.	1.25	@ 1.50
Wood pulp XXX	ton	35.00	@ —
" " X	ton	25.00	@ —
Zinc Oxide— 5 per cent leaded		.06¾	@ .07¼
10 per cent lead sulphate	lb.	.06½	@ .07
20 per cent lead sulphate	lb.	.06½	@ .07
35 per cent lead sulphate	lb.	.06½	@ .07

(Also see whites)

MINERAL RUBBER

Gilsonite	ton	65.00	@ —
Genasco (factory)	ton	60.00	@ —
Hard hydrocarbon	ton	33.00	@ 42.00
Soft hydrocarbon	ton	32.50	@ 38.00
Pioneer M.R.	ton	42.00	@ 44.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00	@ 50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00	@ 45.00
Syntpro, granulated, M. R. (factory)	ton	55.00	@ 75.00

SOFTENERS

Acids

Acetic, 28 per cent	cwt.	3.17½	@ 3.92½
Cresylic, 97 p. c.	gal.	1.50	@ 1.60
95 p. c.	lb.	.75	@ .85
Muriatic, 20 degrees	cwt.	1.00	@ 1.10
Nitric, 36 degrees	cwt.	4.50	@ 5.00
Sulphuric, 66 degrees	ton	14.00	@ 16.00
60 degrees	ton	9.00	@ 12.00
Tartaric, crystals	lb.	.32	@ —

Alkalies

Caustic soda, 76 p.c.	cwt.	3.50	@ 3.75
Soda ash, 58 p.c.	cwt.	1.95	@ 2.30

Oils

Castor, No. 3, bbls.	lb.	.13½	@ —
Corn, crude, bbls.	lb.	.11¼	@ —
refined	lb.	.12½	@ —
Chinawood, bbls.	lb.	.16	@ .21
Cottonseed,		.10	@ .12
Glycerine, drums	lb.	.18½	@ .19
Linseed, domestic	gal.	.94	@ .98
imported	gal.	.86	@ —
Palm Niger		.07¾	@ .07⅞
Lagos	lb.	.08	@ .08⅛
Peanut, domestic, crude	lb.	.15	@ —
Pine, steam distilled	gal.	.80	@ —
Rapeseed, refined	gal.	.85	@ .86
blown	gal.	.95	@ 1.00
Rosin, first rectified	gal.	.46	@ —
second rectified	gal.	.48	@ —
Tar, commercial	gal.	.31½	@ —
Soya Bean		.12	@ .12½
Petrolatum, standard	lb.	.05	@ .08
dark amber	lb.	.04	@ —

Resins and Pitches

Cumar resin, hard	lb.	.09	@ .10
soft	lb.	.09	@ .10
Tar Retort	bbl.	12.50	@ —
kiln burned	bbl.	13.50	@ —
Pitch, Burgundy	lb.	.05	@ —
coal tar	lb.	.01½	@ —
pine tar	lb.	.03	@ —
Rosin, grade K	bbl.	6.40	@ —
Shellac, fine orange	lb.	.90	@ —

Solvents

Acetone, drums	lb.	.21	@ —
Alcohol, denatured, No. 1 bbls.	gal.	.43	@ .45
Benzol, 90 per cent	gal.	.27	@ .33
pure	gal.	.30	@ .35
Carbon bisulphide,	lb.	.06¼	@ .07½
Tetrachloride	lb.	.09	@ .10½
Dimethylaniline	lb.	.42	@ .43
Motor gasoline, steel bbls.	gal.	.24½	@ —
Naptha, V. M. & P.	gal.	.23½	@ —
Toluol, pure	gal.	.30	@ .35
Turpentine, spirits	gal.	1.53	@ —
wood	gal.	1.45	@ —

Waxes

Beeswax	lb.	.38	@ .40
Carnauba, No. 1	lb.	.43	@ —
Ceresin, white	lb.	.10	@ .11
Bayberry	lb.	.25	@ .28
Montan, crude	lb.	.04½	@ .05
Ozokerite, black	lb.	.23	@ .24
green	lb.	.27	@ .28
Paraffine	lb.	.02¾	@ .05
Sweet wax	lb.	.10	@ .12

SUBSTITUTES

Black	lb.	.08	@ .13
White	lb.	.09	@ .16
Brown	lb.	.09	@ .15
Brown factice	lb.	.08	@ .16
White factice	lb.	.09	@ .16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.22	@ —
Sulphur chloride (jugs)	lb.	.13½	@ .15
" " (drums)	lb.	.08	@ .10
Sulphur flour (bbls.)	cwt.	2.60	@ 3.15
(bags)	cwt.	2.35	@ 2.90
Sulphur, 100 per cent pure,		—	@ —
Bergenp't brand (bags)	cwt.	2.30	@ 2.65
(bbls.)	cwt.	2.55	@ 2.90

Chemical Notes

Caustic Soda—Aside from the difficulties in shipments, producers have little to complain about. Trading was excellent and continued steady with a firm undertone. Standard brands are quoted at $3.75 to $3.80 per 100 pounds.

Soda Ash—Business in this department continues to expand with prices firm and unchanged. Light is quoted by dealers at $1.75 to $2.10 per 100 pounds in bags, exstore; and $1.95 to $2.30 in barrels.

Lithopone—There is difficulty in securing crude barytes on account of the situation in Germany but in spite of the increased cost in products there has been no change in prices by producers. Domestic continues at 6½ cents a pound in bags; 6½ to 6¾ in barrels, carload lots, and 6¾ to 7 in barrels less than carload lots.

Blanc Fixe—There was a good demand and the market was very firm at 4¼ cents to 4½ cents a pound for dry and $40 to $50 a ton for pulp.

Barytes—Prices remain unchanged with a good call for the material. Consumption up to this period of the year is ahead of 1922 and there is some difficulty in making prompt deliveries. Prime Western is quoted at $26 a ton f.o.b. point of production.

Litharge—There was no change in the market for litharge. As with other leads prices remained as before with casks quoted at 10.90 cents a pound; 100 to 500 pound kegs, 14.50; 500 to 2000 pounds, 13.05; 2,000 to 10,000 pounds, 12.52 and carload lots, minimum 15 tons, 11.74.

Zinc Oxide—French process oxides are in particularly good demand by the tire manufacturers and consumption this year is far ahead of last year. White seal is quoted at 11½ cents for barrels, carloads; less than carloads, 11¾ cents; green seal, barrels, carloads, 11½ cents; less than carloads, 10¼ cents; green seal, barrels carloads, 10½ cents; less than carloads, 10¼ cents.

Talc—Both domestic and foreign material was in excellent demand and prices held steady with domestic quoted at $15 to $18 per ton; Italian $47, to $58; French, $20 and high grade French, $40.

Whiting—Interest in this article has improved and prices held firm with commercial quoted at $1 per hundred pounds; American paris white, $1.25; English cliffstone, $1.50 gilders' bolted, $1.10 and extra gilders' bolted $1.15.

Palm Oil—There was considerable activity in this market and lack of supplies brought Niger to 7¾ to 8 cents per pound with Lagos firm at 8 cents.

Benzol—The market for benzol was quiet as compared with the previous period but no changes in quotations were noted. Pure, in tanks, was quoted at 30 cents and 90 per cent at 27 cents.

Aniline Oil—Trading was irregular but prices held firm with drums at 16½ to 17 cents per pound f.o.b. factory.

Dimethylaniline — The market was fairly active and quotations at 42 to 43 cents per pound were firmly established.

Scrap Rubber

NEW YORK, MARCH 19, 1923

There have been practically no price changes in scrap since our last report despite the change in crude rubber prices. The market is stagnant with a fair demand. Consumption continues to be high. Quotations of this date are as follows:

Auto tire peelings	.02	@	—
Standard White auto ton	35.00	@	40.00
Mixed auto ton	25.00	@	—
Bicycle tires	.01	@	—
Clean solid truck tires	.02	@	.02½
Boots and shoes	.04	@	.04⅛
Arctics, trimmed	.03¾	@	—
Arctics, untrimmed	.03¼	@	—
Inner tubes, No. 1	.07	@	.08
Inner tubes, compounded	.04¾	@	.05¼
Inner tubes, red	.04¼	@	.05
Battery jars, clean hard rubber	.03	@	—
Rubber Hose	.00¾	@	.00⅞
Red packing	.01	@	.01¼
White druggist sundries	.04	@	—

Reclaimed Rubber

NEW YORK, MARCH 19, 1923.

A slight, almost negligible, reduction in prices are quoted in a few of the reclaims in the past two weeks. The market is steady and active with a good demand in evidence. Quotations are as follows:

Standard Reclaims			
Floating	.18	@	.19
Friction	.24½	@	.25½
Boots and shoes	.12¼	@	.12½
Boots and Shoes (washed)	.14½	@	.14¾
Mechanical	.10	@	.11
Hose	.10	@	.11
Tires, truck	.09½	@	.09¾
Tires, auto	.10½	@	.10¾
White	.13½	@	.14

Mexican Duty Causes Protests

The decree doubling the Mexican import duties on automobile tires, effective February 15, is causing a great deal of protest from tire importers and automobile users. The organization of Mexico City camion drivers has also presented a strenuous protest. It is pointed out that the only two tire factories in the Republic produce a tire of very inferior quality which will not be used by the majority of consumers and that the only result will be to increase the cost of imported tires without the apparently desired benefit to the local industry.

Rubber Census in British Malaya

Singapore reports state that after restriction went into effect a number of rubber estates were offered at auction. An additional rubber ordinance requires licensed dealers to report stocks of rubber on the seventh of each month. An official press statement says that many estates are not restricting production, but storing rubber in excess of export allowance. Notice has been given that a census of rubber stocks will be taken May 1.

Crude Rubber

NEW YORK, MARCH 16, 1923.

Since our last report first latex spot, has receded at least two cents from the 35⅝ cents quotation on the 5th of the month. The market as a whole has been unsettled with a decided weakness shown the middle of last week. At that time there was a fairly good buying interest but mostly at prices slightly under asking prices. A weakness was especially shown in futures.

A week ago a slight recovery took place with sellers reluctant to sell. The paras and lower grades have been very inactive and are nominal. At the beginning of this week the market was firmer and a good buying interest was shown. Again there was a lack of sellers.

On the 13th cabled reports of statements of Winston Churchill to the effect that there would be no modification or repeal of the restriction tax tended to weaken the market and first latex reached its low of 33½ cents. Factories are evidently well stocked and are awaiting developments before committing themselves too far in the future. The market closed firm with a slight increase in several grades and a fair demand.

Quotations of this date are as follows:

Plantations			
Ribbed Smoked Sheets	.33¾	@	—
First Latex, spot	.33¾	@	—
April, May, June	.33⅞	@	.34½
July/December	.34⅜	@	.35¼
Amber Crepe No. 1, spot	.33½	@	—
Amber Crepe No. 2, spot	.32¾	@	—
Amber Crepe No. 3, spot	.32¼	@	—
Light Clean Thin Brown Crepe	.32¼	@	—
Commercially Clean Thin Brown Crepe	.32¼	@	—
Specky Brown Crepe	.31¼	@	—
Roll Brown Crepe, spot	.31¼	@	—
Paras			
Madeira Fine	.31	@	—
Acre Fine	.30½	@	—
Up-river Fine	.31	@	—
Up-river Medium	.28	@	—
Up-river Caucho Ball (shipment)	.28¾	@	.29
Up-river Coarse	.26½	@	—
Islands Fine	.29	@	—
Islands Medium	.28	@	—
Islands Coarse	.15	@	—
Cameta	.15¾	@	—
Xingu Ball	.27	@	—
Tapajos Fine	.29½	@	—
Tapajos Medium	.27½	@	.28
Pontianac			
Prime Pressed	.13	@	.14
Plantation	.07½	@	—
Bangermassin	.08	@	—
Sink Gutta Percha	.20¾	@	—
Prime Macassar	3.00	@	—
Balata			
Surinam Sheets	.80	@	—
Columbia Block	.60	@	—
Venezuela Block	.75	@	—

Brazilian Tire Prices Reduced

Michelin instituted a reduction in retail tire prices in Brazil under date of February 1. The reduction amounted to 10 per cent on metric casings, and 15 per cent on inch clinchers and straight sides. The Michelin reductions of September 1 were followed by American makes, and it is likely that the price reduction will become general, says Commercial Attache W. L. Schurz, Rio de Janeiro, in a report to the Commerce Department.

American Rubber Patents

GRANTED MARCH 6, 1923

1,447,190 Rim. Robert M. Zacharias, Cleveland Ohio, assignor to The Standard Parts Co., Cleveland, Ohio.

1,447,239 Manufacture of Rubber Soles. George Ferguson, Wollaston, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.

1,447,291 Elastic Wheel. Manuel Jose Arce, Buenos Aires, Argentina.

1,447,311 Demountable Rim. John Tannehill Landis and Robert Edward Landis, Nashville, Tenn..

1,447,362 Resilient Wheel. Thomas I. Tingley, Jersey City, N. J.

1,447,365 Cushion Wheel. George Walther, Dayton, Ohio.

1,447,441 Machine for Making Tire Carcasses. William C. Stevens Akron, Ohio, assignor to The Firestone Tire & Rubber Co., Akron, Ohio.

1,447,521 Automobile Tube. John Schwab, Winnipeg, Manitoba, Canada.

1,447,547 Tire Tread. Thaddeus A. Hackley, Seattle, Wash.

1,447,586 Elastic Hinge for Rubber Overshoes. George L. Zucker, East Orange, N. J.

1,447,595 Alarm Device for Tires. Theodor Martin, Saratoga Springs, N. Y.

1,447,625 Combined Jack and Tire Tool. Jack Norris, Spokane, Wash., assignor to United Specialty Co., Spokane, Wash.

1,447,687 Wheel Rim. Harry W. Powers, Northwest, Va.

1,447,710 Clamp Lug for Tire Rims. Shade B. Collier, Orlando, Calif.

1,447,739 Combined Cushion and Pneumatic Tire and Rim Therefor. Elmer E. Thrasher, Cumberland, Md.

1,447,784 Resilient Tire. Edison G. Hulse, Cumberland, Md., assignor to Kelly-Springfield Tire Co., Cumberland, Md., a Corporation of New Jersey.

1,447,980 Filling Device with Rubber Cap for Fountain Pens. Theodor Kovacs, Berlin, Germany.

1,447,804 Collapsible Tire Rim. Jacuelin M. Meredith, Norfolk, Va.

1,447,864 Cushioned Wheel. Martin F. Kettler, Pittsburgh, Pa.

1,447,890 Combined Wheeled and Endless Track Vehicle. Emile Rimailho, Paris, France, assignor to Compagnie des Forges et Acieries de la Marine et d'Homecourt, Paris, France.

1,447,894 Collapsible Rim Lock. Henry Schaechterle, Friend, Neb.

1,447,924 Tire Valve. Alexander V. Chylowski, Detroit, Mich.

1,447,927 Vehicle Wheel. Charles S. Crawford, Indianapolis, Ind., assignor to Premier Motor Corp., Indianapolis, Ind., a Corporation of Delaware.

1,447,928 Swimming Shoe. Valentine Dahler, New York, N. Y.

1,447,930 Preparation of Preservative Substances for Rubber Latex. Samuel Cleland Davidson, deceased, late of Belfast, Ireland; by Frederick George McGuire, Bangor, Ireland, Alfred Agar, Holywood, Ireland and Hugh Taylor Coulter, Belfast, Ireland, executors.

ISSUED MARCH 13, 1923

1,447,979 Armored Pneumatic Wheel. William G. Hawkins and Vivian C. Bloodgood, Harvey, and James F. Donnellan, Chicago, Ill.

1,448,049 Rubber Heel and Fastening Device, Herman L. Beal, Brookline, Mass.

1,448,107. Resilient Wheel. Samuel T. Brizendine, Kansas City, Mo.

1,448,144 Truck Wheel. William H. S. Moore, Cleveland, Ohio.

1,448,150 Tire Armor. Harry B. Raymond and Roy J. Baker, Duluth, Minn.

1,448,168 Tire and Engine Gauge. Joseph M. Trusty and Harry Trusty, Corte Madera, Calif.

1,448,180 Composite Laminated Structure. Harry N. Atwood and George B. Bains, 3rd, Reading, Pa., assignors, by direct and mesne assignments, to Rubwood, Inc., Lawrence, Mass.

1,448,211 Tire Tool. John S. Grassfield, Paris, Iowa.

1,448,248 Automatic Tire Pump. George H. Anthony, Sykesville, Pa.

1,448,286 Method of Decorating Automobile Tire Casings. Jackson D. Comback, Chester, W. Va.

1,448,304 Tire Holder. Frederick Kirkwood, Buffalo, N. Y.

1,448,399 Garter. Edward R. Graf, Watertown, Wis.

1,448,452 Fountain Pen. Edwin E. Kratz, Kansas City, Mo., assignor of one-tenth to Louise A. Weiss, Kansas City, Mo.

1,448,481 Traveling Tire-Vulcanizing System. Martin C. Bright and John M. Brautigam, Indianapolis, Ind.

1,448,551 Trousers Supporter. Minnie Leux, St. Louis, Mo., assignor to Charles Kurlander, St. Louis, Mo.

New Incorporations

DELAWARE

King Tire & Rubber Co., to manufacture automobile tires. $1,500,000. Principal office, Wilmington, Delaware.

Miller Rubber Export Co., Ltd., to deal in rubber and gutta percha. $50,000. Incorporators: Jacob Pfeiffer, William F. Pfeiffer and E. C. Millhoff—Akron, Ohio. Agent, Leonard E. Wais, Wilmington, Delaware. Principal office, Wilmington, Delaware.

Millbury Rubber Corporation, to deal in automobile tires; $3,000,000. Agent, Corporation Trust Co. of America. Principal office, Wilmington, Delaware.

ILLINOIS

The Cambridge Rubber Sales Co., to conduct wholesale business in rubber clothing and footwear in Illinois. $50,000. George Helm Rockwell, president—Brookline, Massachusetts; Ernest Woodruff Dunbar, secretary, Hudson, Massachusetts. Principal office in Illinois, 19 South Wells Street, Chicago, Illinois. Representative, Benjamin H. Shapiro.

IOWA

Ott Rubber Co., to manufacture inner tubes. $300,000. J. J. Ott, president; A. F. Heeb, vice president; F. E. Ott, secretary and treasurer. Principal office, Dubuque, Iowa.

NEW JERSEY

Reading Rubber Co., to manufacture and sell tires and tubes. $250,000. Incorporators: S. H. Bell, Reading, Pennsylvania; J. P. Stiles, Allentown, Pennsylvania; F. C. Myers, Trenton, New Jersey. Principal office, American Mechanic Building, Trenton, New Jersey.

NEW YORK

Nassau Rubber Co., Inc., to manufacture rubber goods. $1,000. W. F. Timme, J. W. Agmar, Jr. and W. J. Tompkins.

Ritz Tire Co., Inc., to deal in tires. $10,000. Incorporators: D. Fried, F. N. Suffian, —Jamaica, New York; I. S. Ottenberg, 206 Broadway, New York City.

OHIO

Miami Rubber Company. $60,000. Incorporators: J. E. Maloney, J. G. DeFossett, Louis T. Murohy, Frank E. O'Callagher and Stanley Wheyman.

Buckeye Rubber Manufacturing Co. $500. Incorporators: Harold H. Burton, James J. Laughlin, Jr., Charles J. Smith and Thomas H. Westlake. Principal office, Willoughby, Ohio.

TENNESSEE

The Tennessee Rubber Corporation. $100,000. Incorporators: R. B. Hickerson, Bradley Pate, I. L. Stooksbury, L. L. Howard, and Neal B. Spahr. Principal office, Knoxville, Tennessee.

British Malayan Rubber Exports

During January, 1923, 22,871 long tons of rubber were exported from British Malayan ports, as compared with 18,427 tons in December, 1922, and 21,642 tons in November, the first month during which the restriction scheme was in effect, according to reports received by the Department of Commerce. The total of 62,940 tons during the three months, may be compared with 55,257 tons during the corresponding period of 1921-1922. Imports and transshipments of rubber at Malayan ports are much heavier than in the corresponding period last year. In the 1921-1922 three-months period the total imports amounted to 7,610 tons, and transshipments to 5,422 tons, while in November, 1922, and January, 1923, alone (figures for December are not available), the imports were reported as 9,526 tons and the transshipments as 4,624 tons. The export figures are the total exports of rubber from British Malayan ports, inclusive of reexports. If it is assumed that imports and transshipments in December, 1922, were at the same rate as in the months immediately preceding and following, the total for both during the three months would be 21,225 tons, and the actual shipments of Malayan rubber could then be estimated at 41,725 tons, as compared with 42,225 tons during the corresponding period of 1921-1922.

Exports of Belting to Canada

The following table of exports of rubber and leather belting from the United States to Canada during 1922 indicates that rubber belting is more popular than leather in all parts of Canada except the Prairie Provinces, where the comparatively small demand is chiefly for leather belting.

UNITED STATES BELTING EXPORTS TO CANADA

To:	Rubber Belting		Leather Belting	
	Pounds	Dollars	Pounds	Dollars
Canadian Maritime Provinces	18,169	9,001	1,206	1,453
Quebec and Ontario	268,830	86,079	85,219	97,753
Canadian Prairie Provinces	3,303	2,570	5,370	4,581
British Columbia and Yukon	45,658	25,022	8,919	15,814
	335,960	122,672	100,714	119,601

It is reported by Consul E. Haldeman Dennison, Quebec, that practically no imported leather belting is used there, probably two-thirds of the amount imported going to Ontario. The use of rubber belting appears to be on the increase in Quebec. The employment of leather belting in the pulp and paper manufacturing industries is impracticable owing to the great amount of moisture in the mills. There is perhaps five times more rubber belting than leather sold in the Quebec district, the lower price of the rubber belting adding greatly to its popularity.

Trade Marks Applied For

[The following are trade-mark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Marks Company, Barrister Building, Washington, D. C. or Bush Building, 130 West 42 Street, New York, trade-mark specialists. As an additional service feature to its readers this Journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.]

LA CROSSE RUBBER MILLS CO., La Crosse, Wis., U. S. A. No. 170,492. La Crosse Rubber Mills Co., La Crosse, Wis. For rubber boots and shoes.

R S L—No. 171,469. The Rubber Service Laboratories Company, Akron, O. For accelerators, fillers, pigments, softeners, solvents, etc. used in the compounding of rubber articles.

EASY TREAD—No. 161,490. Lynch Heel Company, Chelsea, Mass. For rubber heels.

ECLIPSE—No. 169,706. Eclipse Shoe Manufacturing Company, Mexico. For rubber heels.

INTEGRAL—No. 169,919. North American Process Company, Inc., Malone, N. Y. For pneumatic tubes.

GOODWEAR—No. 165,479. John B. Berardi, doing business as the Goodwear Tire and Rubber Co., Bridgeport, Conn. For automobile tires and inner tubes.

OVERLAND—No. 123,149. The Willys-Overland Company, Toledo, O. For pneumatic tires for motor driven vehicles.

JUMBO—No. 114,161. The General Tire and Rubber Company, Akron, O. For rubber tires, tire castings, and inner tubes.

WEAR-EVER PATCHES—No. 169,941. The Wear-Ever Patch Mfg. Co., Inc., Columbus, O. For patches for automobile tubes.

THE RUBBER AGE BUYERS GUIDE

ACCELERATORS
Dovan Chemical Corp., New York.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
National Aniline & Chemical Co., Inc., New York.
Roessler & Hasslacher Chemical Co., New York.
Rubber Service Laboratories Co., The, Akron, O.
Wishnick-Tumpeer Chemical Co., Chicago.

ACCUMULATORS
Adamson Machine Co., Akron, O.
Akron Rubber Mold & Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Wellman - Seaver - Morgan Co., Cleveland, Ohio.

ACIDS
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
National Aniline & Chemical Co., Inc., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

ACID TANKS
Birmingham Iron Foundry, Derby, Conn.
Devine, J. P., Co., Buffalo, N. Y.
Farrel Foundry & Machine Co., Ansonia, Conn.

AIR & STEAM METAL BAGS
Allsteel Ridewell Tire & Rubber Co., Dayton, Ohio.

AIR BRAKE HOSE
United States Rubber Co., New York.

AIR GOODS
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AIR MATTRESSES
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AIRPLANE AND BALLOON CLOTHS
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

ALBA WHITING
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Industrial Chemical Co., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

ALCOHOL
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ALUMINUM FILLER
Wishnick-Tumpeer Chemical Co., Chicago

ALUMINUM FLAKE
Aluminum Flake Co., Akron, Ohio.
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Rubber Service Laboratories Co., The, Akron, O.

AMMONIA AQUA
Laidlow, Kelly & Co., New York.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ANGLE THERMOMETERS
Taylor Instrument Companies, Rochester, N. Y.

ANILINE OIL
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Klipstein, A., & Co., New York.
National Aniline & Chemical Co., Inc., New York.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ANILINE OIL PLANTS
Devine, J. P., Co., Buffalo, N. Y.

ANOLIDE
National Aniline & Chemical Co., Inc., New York.

ANTIMONY, SULPHURETS
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
States Metals Co., Inc., New York.
Rare Metal Products Co., Belleville, N. J.
Tyler Patterson Co., Clev'd, O.
Typke & King, Mitcham, England.
Wishnick-Tumpeer Chemical Co., Chicago.

APRONS—RUBBER
Hodgman Rubber Co., Tuckahoe, N. Y.
Miller Rubber Co., Akron, Ohio.

ARTIFICIAL RUBBER
Carter Bell Mfg. Co., New York.
Stamford Rubber Supply Co., Stamford, Conn.

ASBESTINE
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Tyler Patterson Co., Clev'd, O.
Wishnick-Tumpeer Chemical Co., Chicago.

ATOMIZERS
The Rubber Products Co., Barberton, Ohio.

AUTOCLAVES
Devine, J. P., Co., Buffalo, N. Y.

AUTOMOBILE COATS
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AUTO TOP FABRICS
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United States Rubber Co., New York.

BALLOONS, TOY
Miller Rubber Co., Akron, Ohio.

BALLOONS, TOY, DYES FOR
National Aniline & Chemical Co., Inc., New York.

BALLS, DOLLS AND TOYS
Davol Rubber Co., Providence, R. I.
Essex Rubber Co., Trenton, N. J.
Miller Rubber Co., Akron, Ohio.
New York Rubber Co., New York.
United States Rubber Co., New York.

BALSAM FIR
Butcher, L. H., Co., New York.

BANBURY AUTOMATIC RUBBER MIXER
Birmingham Iron Foundry, Derby, Conn.

BAND CUTTING MACHINES
Adamson Machine Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.

BARBERS' BIBS
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Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
Miller Rubber Co., Akron, Ohio.
United States Rubber Co., New York.

BARIUM DUST
Vanderbilt, R. T., Co., New York.

BARIUM SULPHATE
Butcher, L. H., Co., New York.
Harshaw, Fuller & Goodwin Co., Cleveland, O.
Tyler Patterson Co., Clev'd, O.
Vanderbilt, R. T., Co., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

BARYTES
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., Cleveland, O.
Tyler Patterson Co., Clev'd, O.
Vanderbilt, R. T., Co., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

BATHING CAPS
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
Miller Rubber Co., Akron, Ohio.
The Rubber Products Co., Barberton, Ohio.
United States Rubber Co., New York.

BEAD CABLE
National - Standard Co., Niles, Mich.

BEAD PRESSES
Adamson Machine Co., Akron, O.
Akron Rubber Mold & Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Cleveland Rubber Mold Foundry & Mach. Co., Cleveland, O.
Wellman - Seaver - Morgan Co., Cleveland, Ohio.

BEAD REELS
Gammeter, W. F., Co., Cadiz, Ohio.

BED PLATES
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Allen Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Machine Co., Ansonia, Conn.
Vaughn Machinery Co., Cuyahoga Falls, Ohio.

BELLOWS CLOTH
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

BELT-MAKING MACHINES
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Machine Co., Ansonia, Conn.

BELT SLITTERS
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Machine Co., Ansonia, Conn.

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Birmingham Iron Foundry, Derby, Conn.
Hoggson & Pettis Mfg. Co., New Haven, Conn.

BELTING
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BENZOL
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BIAS CUTTING MACHINES
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BLACK HYPO
Typke & King, Mitcham, England.
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BLACK PIGMENTS
Binney & Smith Co., New York.
Butcher, L. H., Co., New York.
Harshaw, Fuller & Goodwin Co., Cleveland, O.
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BLANCE FIXE
Butcher, L. H., Co., New York.
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BLANKETS—CAMP AND HOSPITAL
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Taylor Instrument Companies, Rochester, N. Y.

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Gutta Percha & Rubber Mfg. Co., New York.
Miller Rubber Co., Akron, Ohio.
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CORES
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Akron Rubber Mold & Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Cleveland Rubber Mold Foundry & Mach. Co., Cleveland, O.
Kuhlke Machine Co., Akron, Ohio.
Reynolds Machine Co., Massillon, Ohio.
Wellman - Seaver - Morgan Co., Cleveland, Ohio.

CORES—EXPANSIBLE
Allsteel Ridewell Tire & Rubber Co., Dayton, Ohio

COUPLINGS
Adamson Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Vaughn Machinery Co., Cuyahoga Falls, Ohio.

CRACKERS
Adamson Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Vaughn Machinery Co., Cuyahoga Falls, Ohio.
Wellman - Seaver - Morgan Co., Cleveland, Ohio.

CRAYONS
Binney & Smith Co., New York.

CRUDE RUBBER
Henderson, F. R., & Co., New York.
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Rubber Imp. & Dealers Co., New York.
Wood, Charles E., New York.
Wilson, Chas. T., Co., New York.

CUTTERS—TIRE SECTION
Adamson Machine Co., Akron, O.

CUTTING DIES
Akron Equipment Co., Akron, Ohio.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Reynolds Machine Co., Massillon, Ohio.

DECKLE STRAPS
Goodrich, B. F., Co., Akron, O.

DESKS—STEEL FACTORY
David Lupton's Sons Co., Phila., Pa.

DEVULCANIZERS
Biggs Boiler Works Co., Akron, O.

DIES
Akron Rubber Mold & Machine Co., Akron, O.
Cleveland Rubber Mold Foundry & Mach. Co., Cleveland, O.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
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